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Paul D. Meyers**
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American Aviation

NEWSLETTER

Volume 15 Number 24

November 12, 1951

Army and Air Force have started writing a regulation covering airplane procurement fields allocated to the Army, but previous Joint Chiefs of Staff agreement on Army procurement of last March is still in effect. Army aircraft restrictions (2,500 pounds for liaison planes and 4,000 for helicopters) are no longer legal; "function" is the governing factor.

Thus the Army may buy planes for artillery liaison, troop assault, communications, etc., but USAF missions such as tactical air remain untouched.

Army Secretary Pace and AF Secretary Finletter have drawn up a "memorandum of understanding" to guide the regulations writers but it merely restates the old JCS agreement. In other words, the Army-Air Force battle for control of tactical air power is still on.

Two new decisions involving employees of aircraft companies in the Los Angeles area may have far-reaching effects before too long.

One involves Lockheed's plan to pay premium overtime to non-represented salaried personnel. Lockheed's salaried workers earning less than \$100 a week will receive time and a half for overtime (just like hourly workers), while those receiving more will be paid time and a half on the first \$100 and straight time on the balance. It has not yet been decided where the firm will draw the line between salaried and top-level personnel (who would remain unaffected) but the break-off point is expected to be either \$12,000 or \$14,000 a year.

Observers believe the Lockheed plan, which is subject to approval by the Salary Stabilization Board, may be the first anywhere in the aircraft industry to pay premium overtime rates to salaried workers. Until now, aircraft firms have paid salaried workers who worked more than 40 hours at straight time.

Another agreement, the one recently signed between the AFL-Machinists and Douglas, contains an automatic progression pay clause for the lower pay grades in place of the heretofore-standard merit review system incorporated in other IAM contracts.

If the Machinists find the automatic progression clause to their liking, they will try to incorporate it in any future contracts they sign. The other aircraft union, UAW-CIO, has had automatic progression clauses inserted in virtually all of its contracts with the aircraft industry.

Helicopters are still booming. Requests for more money for the rotary wing craft will appear either in a 1952 supplemental or fiscal 1953. Main

reason is that the Army is studying methods whereby helicopters would take over many jobs now handled by trucks, especially transportation of troops. An entire battalion was recently moved into position by helicopters in Korea in a very short time.

Interest in convertiplanes will pick up too, especially since more and more speed is being requested. One forthcoming competition, for example, will ask for a top forward speed of 275 mph, far beyond the capabilities of any known or projected helicopter.

Boeing's eight-jet XB-52 bomber will probably not fly this year after all. Air Secretary Thomas K. Finletter says the super-Stratojet will roll out before Jan. 1 but it will be six weeks to two months after that before the first test flight occurs.

Redefinition of small business in the aircraft industry places airframe and engine builders with 2,500 workers or less, propeller manufacturers with 1,500 or less and aircraft equipment makers with 250 workers or less in that category.

New standards were issued by the Commerce Department. Pentagon officials, however, plan to take them up with Small Defense Plants Administrator Telford Taylor before using them as criteria in granting defense contracts.

CAB's recent ruling dividing domestic airlines into subsidy and non-subsidy groups is complicating the passenger fare situation. Non-subsidized carriers now paying fairly heavy excess profits taxes feel fares could be cut, but those still receiving government grants oppose it at this time. CAB is considering the problem and may recommend an increase in coach services while leaving basic fares alone.

Price of DC-4's has hit the \$600,000 mark. An offer for that figure was recently rejected.

A men-only hiring policy has been started by Douglas' Long Beach plant in an attempt to speed production, but company officials admit they don't know how long the policy can be maintained.

They feel the recent strike's effects will be felt for nine months but add this time may be decreased if they hire only men. Many workers obtained other jobs during the six week walk-out and failed to return.

MANUFACTURERS

Senate Preparedness Subcommittee investigators are checking "procurement irregularities" at Wright-Patterson AFB. If the inquiries justify them, hearings will be held.

Curtiss-Wright Corp. and **Wright Aeronautical Corp.** have merged, eliminating the 2% of WAC stock that was not owned by C-W. C-W will pay \$115 a share for the 11,813 shares held by private interests.

DPA has put off until Jan. 1 its plan to ban approval of tax concessions to firms which have started new building projects. The program, designed to force firms to get approval before construction, was to have gone into effect Nov. 1.

Chrysler Corp. has received a multi-million dollar Navy contract to prepare for production of Hamilton-Standard propellers. The project will be carried out at the San Leandro, Calif., Dodge plant, where Chrysler is building a 750,000 square foot addition.

Muskegon Piston Ring Co. stockholders have voted to merge with Thompson Products, Inc. despite a Justice Department warning the deal might be "inconsistent with the anti-trust laws." Muskegon stockholders will receive one share of Thompson for every 2½ shares of Muskegon they surrender.

Kropp Forge Co. will install a 16,000-pound forge hammer for aircraft and jet engine parts production at its Chicago plant. A 20,000 pound and 35,000 pound unit will be installed later.

PLANES AND EQUIPMENT

USAF has changed the names of two engine types. The 9,000 pound thrust J-47-21 becomes the General Electric J-73 while the 8,000 pound thrust J-35-23 becomes the Allison J-71.

Gruman F9F-6, swept-wing version of the Panther featuring an improved Pratt & Whitney J-48 engine, is now undergoing first-phase flight tests. It is an interim craft between the -5 and the F10F-1, a larger swept-wing version slated for production.

Tailless helicopters has been designed by K. G. Anderson, University of Minnesota engineer. He expects a flying model to be ready by spring. It will reportedly have a service ceiling of 15,000 feet, a straight vertical climb to 6,000 feet and an endurance of eight hours or 500 miles. In full production, the craft would cost about \$15,000, he says.

Zerbee Fix Finder to navigate ships and planes by stars has been accepted by the Navy, the inventor says. It reportedly makes it possible to locate a plane's position within one mile.

Sabre Flitronic, a flight simulator for the North American F-86D, has been delivered to the USAF by Engineering and Research Corp.

Remote vertical gyro indicator system is now being used in all-weather flying systems at the Wright Air Development Center's Equipment Laboratory. The unit features an electrolytic pendulum which senses deviations from true vertical and starts a signal which drives torque motors to correct the deviations.

New General Electric-Navy BuAer shock mounting device, known as the center of gravity type mounting, isolates jet engine controls from vibration and shock. It will first be used as shock mounting for voltage regulators.

France's new Dassault M.D. 452 Mystere jet interceptor reportedly won over the North American F-86 in recent high altitude mock combat tests but the Sabre was better at low altitudes, unofficial reports state. Air Secretary Finletter says U. S. tests of French planes do not involve plans to produce them in this country.

Diesel Power, Inc's diesel engine now powering a Taylorcraft in test flights weighs 245 pounds, has a 14 to 1 compression ratio, produces 100 hp at 2,400 rpm's and 125 hp at 2,600 rpm's.

MILITARY

Pilot exchange program has been started between Military Air Transport Service and Strategic Air Command so that MATS pilots may become heavy bomber pilots.

New Office of Transportation has been set up in Munitions Board under Col. Charles H. Voeller to handle defense transportation problems. Office will not be operational but will determine Defense Department policy on loans and materials for airliner production.

AIRLINES

In an unprecedented action, Civil Aeronautics Board has directed New England Air Express, a large irregular carrier, to show cause why its letter of registration should not be suspended immediately for "gross mistreatment" of the public. Carrier was ordered to appear before CAB on Nov. 26 to answer charges made by CAB enforcement attorneys. Charges were supported by sworn affidavits of passengers. One example cited by CAB was a transcontinental flight in October when passengers were delayed seven hours at Hutchinson, Kansas, 15 hrs. at Kansas City, two hours at Chicago and were terminated short of destination two days after departure. New England was recently suspended by Aircoach Transport Association, non-sked group, but reinstated after a short period.

American Airlines and Air Line Pilots Association signed a new contract providing 1½¢ per mile flying pay for first pilots, gross weight pay based on 1¾¢ per 1,000 lbs. of certificated gross weight per hr. of flying, base pay and mileage pay for co-pilots instead of straight monthly salary, guarantee of \$800 per mo. for reserve first pilots, and retroactivity of the pay formula provisions. Captains' base pay is \$200 per mo. for first three years, increasing thereafter at rate of \$20 per mo. until it reaches \$300. Co-pilots get \$350 per mo. base pay for first year, \$200 per mo. plus 30% of captain's flight pay in second year, \$200 plus 40% in third, and \$220 plus 50% thereafter. Co-pilots will start accruing longevity toward captaincy from date of hiring and will be given a monthly guarantee of base pay plus 60 hrs. of flight pay, divided equally between day and night flying.

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NOVEMBER 12, 1951

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The new 250 mph dynamometer at Wright Field is shown here with Goodyear Rib All-Weather Tread Tire on test for use on high-speed jet aircraft.

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NOVEMBER 12, 1951 • Volume 15 No. 24



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ERIC BRAMLEY

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Cover Photo

PAUL D. MEYERS, vice president in charge of sales and director of Airwork Corp., Millville, N. J., is one of the officers primarily responsible for the rapid growth in the volume of overhaul and maintenance work done by the company, which marks its fifth anniversary this month. Meyers, 56, was in aviation in both wars. During World War II, he was an Air Force colonel, serving two years in China where he commanded bases at Chengtu and Kunming. Before the war he had spent three years in CAA's airport section, and after the war became assistant to the president of Colonial Airlines. Then, in 1946, he and four associates formed Airwork. The company has overhaul facilities for Pratt & Whitney and Continental E-185 engines, handles accessory overhaul, and is distributor for over a dozen aviation products. Meyers has 7,000 hrs. of military and commercial pilot time, and flies extensively in Airwork's Bonanza.

other publications

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Letters

Letters should be addressed to The Editor, American Aviation Magazine, 1025 Vermont Ave., N.W., Washington 5, D. C. Anonymous letters will not be printed, but names will be withheld upon request.

'Sense of Fair Play'

To The Editor:

As director of the United States Information Service at the American Legation in Saigon, I have occasion very frequently to talk about American journalism and American publications. I point out their good technical points, their attractive presentation, their interesting and informative subject-matter. I mention that we are particularly proud of accurate reporting and fair treatment, under the philosophy that attention to truth is the best long-run guarantee of credibility on the part of the reader. I point out that our sense of fair play dictates correction when we have been in error, not alone for the sake of the one sinned against, but for the sake also of those we try earnestly to keep properly informed on the contemporary world.

And to illustrate what I and my colleagues mean, we have a large and attractive reading room in Saigon, with some 150 American magazines. Among them is AMERICAN AVIATION.

Doubts Cast

With this as background, you may be able to imagine the doubts you cast upon our claims for American reporting practices with your article "En Route" in the Aug. 6, 1951, issue of your technically excellent magazine. In the one paragraph on Saigon under the heading "Red Soil" I count no less than six glaring errors of fact. In the section entitled "In Bond," you are certainly entitled to your own impressions; but you are equally inexact, by implication, in this part, too, particularly as concerns the restrictions on movements, imposed

upon you as a transit passenger. Have you ever had the experience of flying from Europe to some point in Canada via New York, with no stop-over privileges? And yet New York is not in a country actually in the midst of a war, as is Saigon.

I felt I couldn't leave this little incident where it lay. So, still insisting upon the fair play of American publishing, I turned to colleagues in the French Information Service here and asked them for documentation that might serve to rectify somewhat the article in question. In response to my suggestion, they have addressed to you the enclosed letter, to which I attach a translation. They have likewise furnished a certain photographic documentation on Saigon and its airport. I can personally vouch for all the facts they indicate.

I don't know what you may care to do about this particular case, Mr. Editor. I think, realizing the impact of this sort of thing, I know what I would do in your place. A paragraph of correction in a coming issue would make more good will for your publication in this area than you can imagine. If it is not forthcoming, then I suppose any future reference in Saigon to American journalistic fair play will have to carry the term in quotation marks.

With every assurance that this letter will call forth the response of the American you say in your article you are "glad to be."

LESLIE S. BRADY
Public Affairs Officer
American Legation
Saigon, Vietnam

(Translation of letter from French Information Service).

To The Editor:

We are a group of Frenchmen, sincere friends of America, who have read with a lively interest the article which you published in Saigon in your magazine last Aug. 6, under the title "Red Soil—In Bond." But we are indeed sorry that you passed through Saigon so rapidly, without even being able to leave the airport, and that people have so badly

informed you about the city. We admit that we were troubled in noting in your article certain errors which, if they were not corrected, would cause in our opinion the gravest wrong to the American press, which we have always held in high esteem for its attention to objectivity and its respect for truth.

Precise Information

As Mr. Brady has requested, we are sending herewith a bit of rather precise information on Saigon. The city of Saigon-Cholon has a population of 1,700,000, and not the 150,000 your magazine states. A census of the population has just taken place, in order to draw up the list of men capable of playing an active role in case total mobilization, provoked by Communist pressure from outside the country, should become necessary. We add that one can scarcely separate Saigon from Cholon, its Chinese suburb. But even if one did make this distinction, the population of Saigon alone would still be over 900,000.

We understand very well how, having approached the city by plane through the outskirts—the airport of Tan Son Nhut through which you passed—is situated 6 kilometers from Saigon—you were unable to give the urban center more than a superficial and fragmentary glance. As in the case of most cities in the world, you were able to see only the fringe of the city which constitutes the transition between town and country. In Saigon, under a tropical climate, this suburban and half-rural zone is made up of straw huts which are built in the middle of fields flooded during a great part of the year and used for the cultivation of rice. There are no streets, properly speaking, but mere raised dirt roads, called dykes or dykelets.

But the city limits of Saigon-Cholon contain 260 kilometers of asphalt streets, very well kept up, as we are sure the many American citizens living in Saigon will gladly tell you. The length of flagstone or hard surface sidewalks which border these streets is more than 500

(Continued on page 68)



SAIGON from the air . . .



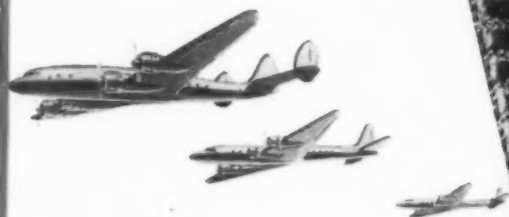
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Editorial

Single Airline for Europe

IT HASN'T received much attention in the United States but there is a proposal being pushed in Europe which needs to be placed in the spotlight of publicity before it reaches a dangerous stage.

The Council of Europe, which has headquarters in Strasbourg, France, and which is a postwar effort by European governments to tie together more

closely the various countries of the Continent, has been listening to proposals for a single European airline.

All of the impetus for such an airline has come from government circles, not from the op-

erators. European air carriers who at first treated the proposal lightly have now begun to be concerned that it might be taken seriously by various governments and actually take tangible form.

The Committee on Economic Questions, apparently for lack of more fruitful things to accomplish, actually made a formal and solemn report to the Council a few months ago strongly recommending a single European air organization "to compete with powerful American airlines."

It seems that the committee decided that European air transport hasn't kept pace with the United States and it blames this on the "chaotic competition" among the European carriers. It says this competition is keeping costs high and thus is preventing cheap fares.

The committee thinks that a single European airline is the only means of supporting national aircraft industries in Europe, but it fails to recommend a solution to the problem of which national aircraft industries would be saved.

It believes European countries should "combine forces and organize a rational division of labor with a view to cutting costs, reducing rates and increasing air traffic."

What it really wants, the committee says, is the participation of all existing European companies in a joint organization. But it admits that this is an ideal. So it is willing to settle for the creation of an international company which would act as a mere chartering agent for the national companies and pay for their services on a miles-flown basis. Or it might settle for the establishment of a European association on the pattern of the three-nation Scandinavian Airlines System, with no separate legal identity, but responsible for allocating routes, timetables, operational frequency, capital investment and profits, between the associated companies in a proportion to be fixed by common agreement.

All of this shows what can be done when a group of government people, having failed to accomplish practical results in breaking down tariff and trade barriers, starts finding something to do with its spare time.

The committee reveals its own ignorance of air

transport problems by conceding that all of the existing European carriers should continue to operate their own national overseas and intercontinental routes. How the intercontinental services could ever be segregated from intra-European services is not explained but any airline expert in Europe knows that it just can't be done. European air transport is integrally locked with overseas and intercontinental air transport.

One may well ask, what has the U. S. to do with such a plan and why should it evoke any major interest in this country? The answer to that is that everything must be done to prevent the further spread of bureaucratic domination of air transport anywhere in the world. And the proposal in Europe uses as one of its strong arguments the fact that American carriers are now important factors in intra-European transport. This latter point is all too true. Both Pan American and TWA are doing excellent point-to-point fifth freedom business in Europe. But a single European carrier is hardly a rational answer to American competition.

The fact is that European air transport has moved ahead very steadily since the war. Companies that were completely closed down in World War II are now back in good shape and getting stronger all the time. Competition is healthy and only on occasions is it wasteful. If the European bureaucrats think fares are too high they are a little hasty. Tourist fares are coming with as much rapidity as the economics of the airlines can justify.

This business of "joining together" to slice up the costs is just another socialistic dead end by which you cut up what you have and forget about expansion and initiative.

It is interesting that the committee eyes with envy the Scandinavian Airlines System consortium which is perhaps one of the outstanding examples of constructive and beneficial teamwork by three small countries in recent history. But such a three-way deal didn't come by government action. It came by the sweat and toil of private enterprise and private management which was practical and sound enough to realize that a joint company could become a vital factor in world air transport where three small individual companies could not.

Even then it took a long time for the three countries to get together into a single association. SAS is the outgrowth of an experimental international company started in 1946 which expanded two years later into a revenue pool and which didn't take final shape as a single company until February, 1951.

To think of doing the same thing for the entire continent of Europe is nothing short of staggering and the proponents of a single European airline haven't the foggiest conception of operational and other technical problems and of all of the thousands of small facets which go to make up an important airline system.

Let the Council of Europe tackle some basic political and economic problems by which Europe can become welded into a United States of Europe.

WAYNE W. PARRISH



Crazy with the heat!

Radar and electrical equipment on supersonic airplanes goes haywire unless cooled to "livable"* temperatures!

"Make it smaller!" was the plea of aircraft builders to the radar and electrical manufacturers.

So they did. Electronic tubes came down to "peanut" size, and the little black boxes housing equipment to operate guns, bomb sights, cameras, navigation and communication devices became smaller and smaller.

But as size decreased, *temperature increased!* It was found that, at high speeds and altitudes, radar and electrical equipment went haywire. The only answer was to cool this equipment, in the same manner cockpits are cooled for pilots.

AiResearch — world's most experienced concern in aircraft pressurization and air conditioning — went to

work. Today ways are being pioneered here to cool the little black boxes. Much remains to be accomplished: Work that calls for close cooperation between AiResearch and the makers of airframes, engines, radar and electronic equipment.

AiResearch has the skilled engineers, laboratory, testing and manufacturing facilities, and the "know how" gained through 12 years of solving problems in the refrigeration and pressurizing of aircraft. That's why nearly every post-war airplane is AiResearch equipped!

* To the temperature limits of AN-E-19

• **AiResearch — specialists in the design and manufacture of aircraft refrigeration equipment — is a leader in the following major categories:**

Air Turbine Refrigeration ♦ Cabin Superchargers ♦ Gas Turbines ♦ Pneumatic Power Units ♦ Electronic Controls ♦ Temperature Controls ♦ Heat Transfer Equipment ♦ Electric Actuators ♦ Cabin Pressure Controls

AiResearch Manufacturing Company, Dept. C-12, Los Angeles 45, California

AiResearch
DIVISION OF
THE GARRETT CORPORATION

When & Where

- Nov. 14-16—National Aviation Trades Assn., 12th Annual Convention, Hotel Texas, Fort Worth.
- Nov. 15-16—The Magnesium Association, 7th Annual Meeting, Biltmore Hotel, New York.
- Nov. 28-30—Aviation Distributors and Manufacturers Assn., Annual Winter Meeting, Waldorf Astoria Hotel, New York.
- Nov. 30-Dec. 5—American Society of Mechanical Engineers, Chalfonte Haddon Hall, Atlantic City, N. J.
- Dec. 4-5—Transport Aircraft Hydraulic Accessory & System Conference, Sheraton Hotel, Detroit.
- Dec. 6-7—Feedback Controls System Conference, Chalfonte Haddon Hall, Atlantic City, N. J.
- Dec. 15—National Aeronautics Association, San Francisco Chapter, "Kitty Hawk Day" Celebration.
- Dec. 17—15th Wright Brothers Lecture, U. S. Chamber of Commerce Auditorium, Washington, D. C.
- Dec. 17—Wright Memorial Dinner, Statler Hotel, Washington, D. C.
- Dec. 17—Air Transport Association, Board Meeting, Carlton Hotel, Washington, D. C.
- Dec. 18—Air Transport Association, Annual Membership Meeting, Carlton Hotel, Washington, D. C.
- Jan. 5-6, 1952—Annual Miami Air Show, Opa Locka, Fla.
- Jan. 28-Feb. 1, 1952—Institute of the Aeronautical Sciences, 20th Annual Meeting, Astor Hotel, New York.
- Mar. 3-6, 1952—Institute of Radio Engineers, Waldorf-Astoria Hotel and Grand Central Palace, New York.
- Mar. 17-19, 1952—Second Midwestern Conference on Fluid Mechanics, Ohio State University, Columbus, O.
- Mar. 17-22—American Society of Tool Engineers, Chicago.

International

- Nov. 21—ICAO, FAL, 3rd session, Buenos Aires.
- Nov. 26—IATA, Technical Committee, "Evaluation of Decca," London.
- Nov. 27—IATA, Traffic Committee and Joint Traffic Conferences.
- Dec. 3—IATA, Technical Committee, "Short Distance Navigational Aids," London.
- Dec. 6—IATA, Technical Committee, OPS Sub-Committee, 3rd Meeting, London.
- Jan. 22, 1952—ICAO PEL, 4th Session, Montreal.

NOVEMBER 12, 1951

*Fourteen years ago... in
our first year of publication...*



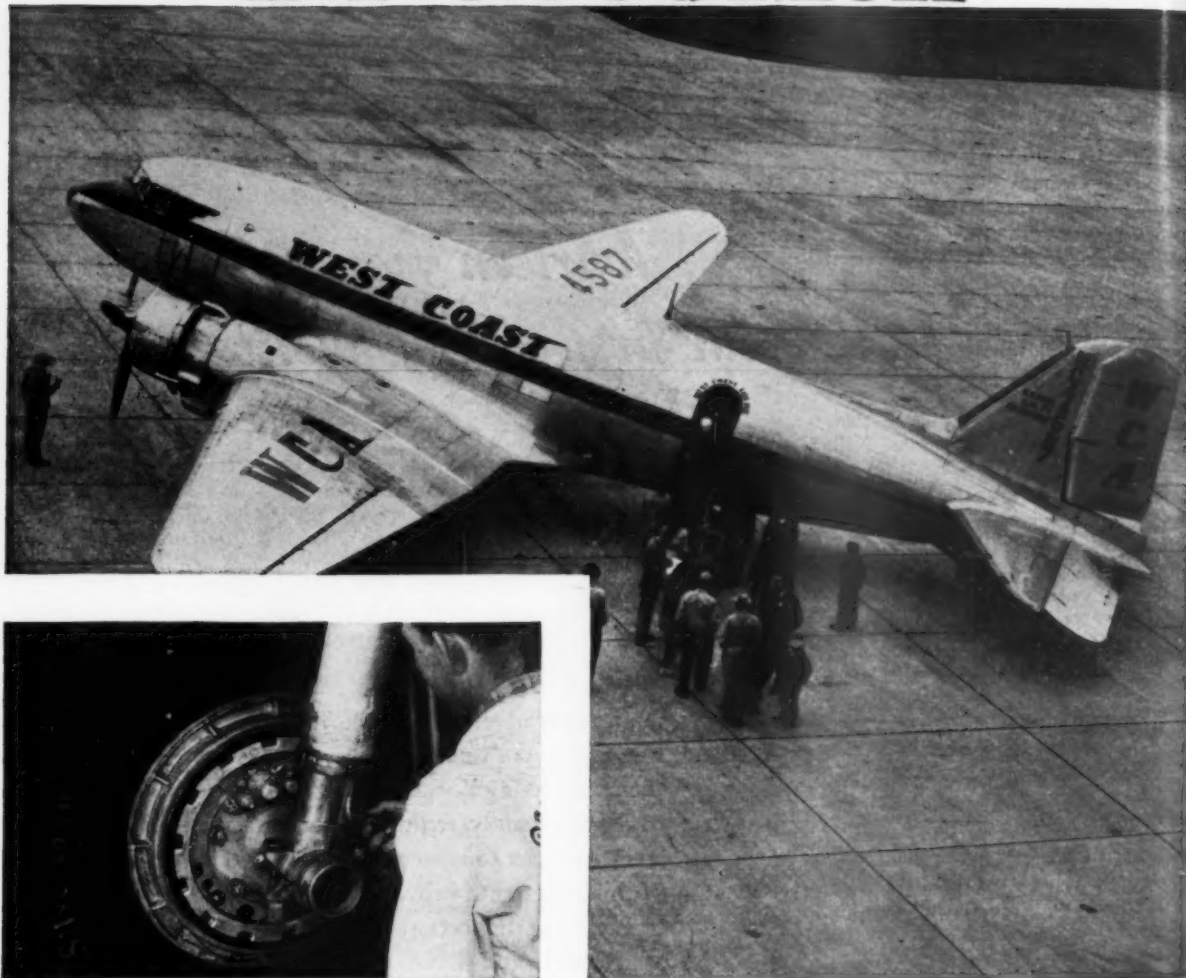
ran its first advertisement in American Aviation Magazine. We've both come a long way since then, and today Lockheed Aircraft Corporation continues its advertising messages in American Aviation on a consistent schedule. We're proud of this experience-proven confidence.

The most important companies in aviation, who know and have grown with this great industry, advertise consistently in the most important magazine in aviation...

*Integrity
Influence*



B.F. Goodrich



5,000 landings per lining reported with B. F. Goodrich brakes

WEST COAST AIRLINES' fleet of DC-3's has so many short flights that landings have to be made every 20 minutes on the average. Maintenance costs were extremely high because the brakes they were using gave too few landings per lining. Wasn't there some way to reduce that cost?

Their engineers had heard of B. F. Goodrich Expander Tube Brakes. They decided to change over all their planes. Now they are able to report over 5000 landings per lining. Maintenance costs have been reduced 60%. Savings to West Coast have far more than made up for the initial cost of the changeover.

One reason why B. F. Goodrich Expander Tube brakes last longer is because the braking action covers a *full circle*; wear is spread more evenly. The design of the brake gets rid of heat better, adding to the life of the parts. Retractor spring action eliminates wear due to drag.

Simple design of the brake makes maintenance easier, reducing in-shop time. Only tools needed to reline it are a screwdriver and pliers. Because the expander tube applies pressure directly to the brake blocks, extra parts and linkages are eliminated.

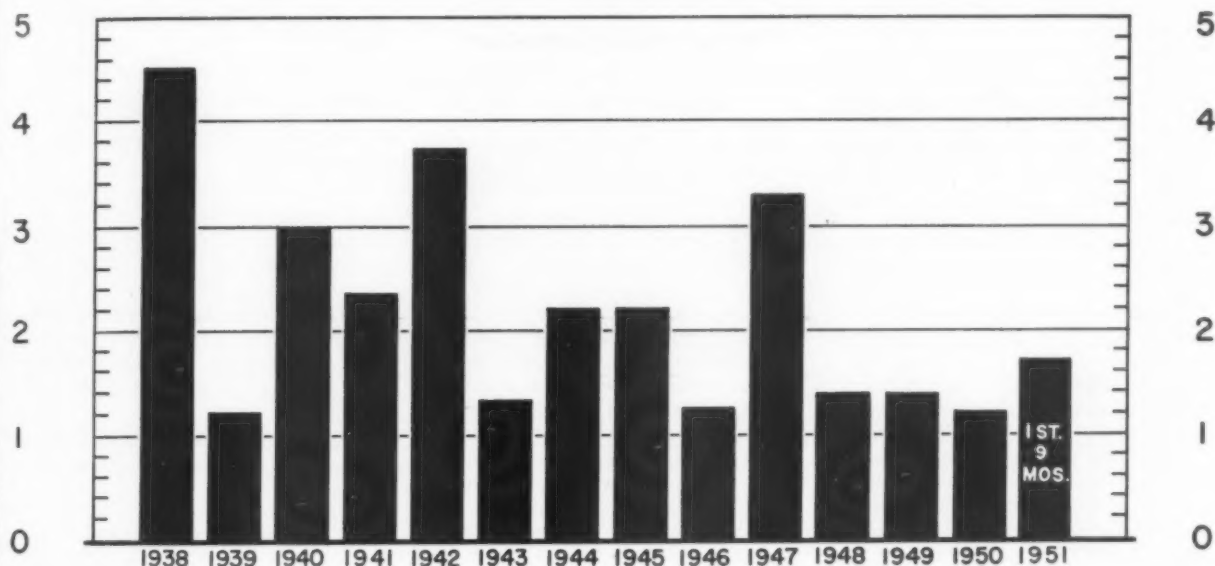
There are other advantages. Expander

Tube brakes can be designed lighter for a given amount of kinetic energy than any other brake.

They cannot lock or grab. They respond more smoothly to pressure. They can take heavy overloads better in emergencies. Another product of B. F. Goodrich research and engineering, the Expander Tube brake can be designed into any type of plane, large or small. Write: *The B. F. Goodrich Co., Aeronautical Division, Akron, Ohio.*

B.F. Goodrich
FIRST IN RUBBER

AMERICAN AVIATION



PASSENGER FATALITIES per 100 million passenger miles for the scheduled airlines are shown in chart.

Improved Air Safety Gets Top Priority

Airlines, government draft plans to improve already-good accident record.

By WILLIAM D. PERREAULT

FOR the first time in recent years the airlines, Civil Aeronautics Board and Civil Aeronautics Administration are expressing concern over the safety record of the scheduled airlines.

The record is still good, only 1.73 passenger fatalities per 100 million passenger-miles during the first nine months of this year, the period under such close scrutiny, but industry developments stress the need for vigilance.

Air traffic on the nation's airways is up sharply. The number of planes in congested terminal areas is on the increase. Military recall of air traffic control personnel and general losses of controllers, communicators and other trained airways employees are lowering the efficiency of this key group at an alarming rate.

Expanding operations, including both new equipment and greater utilization of old equipment, have made it necessary for the airlines to recall all furloughed pilots and lower their employment standards to fill the remaining deficits. Some airlines are hiring pilots with no multi-engine experience and

then training them for instrument ratings at private flying schools.

With experienced first officers advanced to captains, regular captains are noticing the increased burden of operating with green co-pilots. In instances where flight engineers are in line for co-pilot positions, the situation is even more complex.

Greater equipment utilization and delivery of new equipment have also put a premium on mechanics. The shortage of experienced mechanics is now beginning to be felt.

207 Fatalities

During the first nine months of 1951, nine fatal accidents in domestic and international operations of the U. S. scheduled airlines have claimed the lives of 173 passengers and 34 crew members. Domestic airlines have a passenger fatality rate of 1.77 per 100 million passenger-miles versus 1.1 for the 12 months of 1950. It is still mathematically possible that the 1951 record will equal that of 1950 — if no additional accidents occur during the coming winter months.

Result is that the most concerted effort ever made to analyze the accident potential in every-day airline operations is under way and steps are being taken to improve safety of operation in every possible way.

Within the past few weeks, the presidents of all the scheduled airlines were called to Washington for discussions with CAB Chairman Donald W. Nyrop and CAA Administrator Charles F. Horne on the subject of airline safety. Another such meeting is scheduled for early this month. Top operations men from all the airlines also met with CAA and CAB officials in Denver on Oct. 4 for the same purpose, sandwiching the meeting into the regular Operations Conference.

Out of these preliminary meetings have grown several tentative proposals for improved operations. It is too early to predict the final outcome of these meetings but certain trends are evident:

- A top-level committee of airline, CAA, CAB, Air Transport Association, Air Line Pilots Association and Aircraft Industries Association representatives will be formed to monitor safety of airline operations on a regularly scheduled basis.

- Development of a reliable flight recorder will be high on the list of equipment activities, with CAA start-

ing immediately to service test all existing types which show promise of providing an accurate record of aircraft operation.

- An attempt will be made to establish an equitable and acceptable method of handling crew members whose obvious shortcomings might endanger flight operations.

- CAA will be urged to require that all aircraft operating in the vicinity of high-density traffic be equipped with certain minimum communications equipment.

- Airlines will be required to revamp cockpit procedures, to simplify them where possible, determine that recommended procedures are followed and step up refresher courses for all pilots. Flight deck discipline will get particular emphasis.

- Installation of high-intensity approach and runway lights and use of voice-type markers in place of present coded marker identifiers will be accelerated.

- Maintenance and overhaul procedures will be given a long, hard look to determine if the ever-lengthening overhaul and inspection periods are a contributing factor in known shortcomings.

- Airborne radar will be given renewed attention. One or more airlines can be expected to lead off with at least trial installations.

Drive to Continue

This is but a partial list. It will be enlarged, and some type of priority applied to those items which show promise of immediate returns while those requiring developmental work such as airborne radar and recorders, will be put in motion. Unlike many such drives in the past, there is high-level backing in the airlines and government to keep this one rolling.

None of these considerations is new. For almost two years, the airlines have been conducting extensive tests on flight recorders, have accumulated more than 2300 hours of flight time on 16 units operated by 14 airlines.

A flight recorder can be used to record altitude and vertical acceleration, taking intelligence from the regular instruments, and making permanent records on suitable charts or on magnetic tapes. This is the type of information sought in the airline tests. There is high interest in using the recorder to record all cockpit conversation or just pilot radio messages. Inability of magnetic tapes to successfully withstand high temperatures, such as those that might accompany a crash fire, limit the possibilities of successful voice recordings.

Recorder manufacturers claim they can record any of the intelligence normally shown on cockpit instruments with six or more functions recorded on

one unit. Such recorders are in fact used in virtually all flight research work. In these applications, however, the recorders can be given more expert attention than in scheduled airline use and their total operating time is much more limited. CAA's forthcoming tests will analyze these difficulties.

Over Wrong Marker

Voice identification of airways markers is just getting under way, some 138 installations now installed or programmed. Most current day markers are identified by code picked up by the pilot flying over the marker. Marker codes are paced at eight words per minute, the minimum pace required of pilots. Less tangible than the pilot's known ability to identify these codes is the natural tendency to hear or see what one is expecting. Result is that there are many known cases of pilots reporting over a given marker when subsequent developments prove that this was impossible.

Installation of voice-type markers appears to be a field where much progress can be made in a minimum of time, providing funds for equipment, can be obtained.

Pan American Airways is reported actively considering the installation of airborne radar. American Airlines personnel associated with the long Navy tests with airborne radar are quite enthusiastic about it. But on the whole the industry is cool to presently available radar. These lines believe that the principal advantage of radar is its ability to warn pilots of thunderstorms and other severe turbulence, permitting them to by-pass storms. Present-day radar has shortcomings in this application; it sometimes presents misleading information.

Principal deterrent to direct CAB or CAA action requiring positive and immediate action on either recorders, radar or any similar piece of new equipment is the specter of the Board's past experience with terrain clearance indicators. CAB made these radar devices mandatory in the early postwar period, causing the airlines to spend several million dollars on equipment which simply would not work. Everyone concerned is cautious, if not over-cautious, about the implications of a recurrence of this blunder.

One of the facts facing any realistic survey of airline accidents is that no particular pattern appears in recent accidents. This makes it difficult to suggest corrective action which will reflect the findings of past accidents. Instead the whole matter calls for a "searching examination" of airline operation with a critical eye. That's just what it's going to get.

CAB's Non-Sked Probe May Take Two Years

Over 50 lawyers representing 80-odd air carriers tangled in perhaps the stormiest prehearing conference in CAB's history recently as the Board's Large Irregular Carrier Investigation got underway.

Normally a two-hour session, the conference lasted for two days and gave evidence that a final CAB decision in less than two years is practically an impossibility.

At stake is the future role of the non-skeds in the air transport picture. Here is how Louis W. Goodkind, deputy director and counsel for CAB's air operations bureau explains it:

CAB will formulate an over-all policy on the basis of the record in the case.

Each individual non-sked's position will be then determined under that policy.

A non-sked may wind up with greater or lesser operating authority than exists today.

Complex Record

But after the legal skirmishing which marked last week's conference, the record in the case promises to be the most complex and probably the largest the Board has ever handled. From the start, the non-sked attorneys hammered away at the CAB order instituting the investigation, claiming it was "unclear," "null and void," and "invalid." They disputed CAB's authority to combine "rule-making" and "adjudication" in one proceeding.

In fact, they bombarded CAB Examiner Ralph L. Wiser with so many questions in rapid-fire order that he declined to rule on any until they were submitted in writing and he had a chance to study them. The non-skeds even produced their own court reporter to record an unofficial though complete record of the two days' happenings.

14 Airlines Attend

Attorneys for 14 scheduled airline intervenors indicated by their arguments that the case may be a show-down for the long-smoldering feud between the scheduled and non-scheduled industries.

Close observers estimate that preliminary paper work prior to hearings will consume about nine months. Hearings, they estimate, could run from three months to a year. Allowing a conservative six months for an examiner's report, the non-skeds seem assured of at least two more years of operations under the current blanket exemption issued by CAB.

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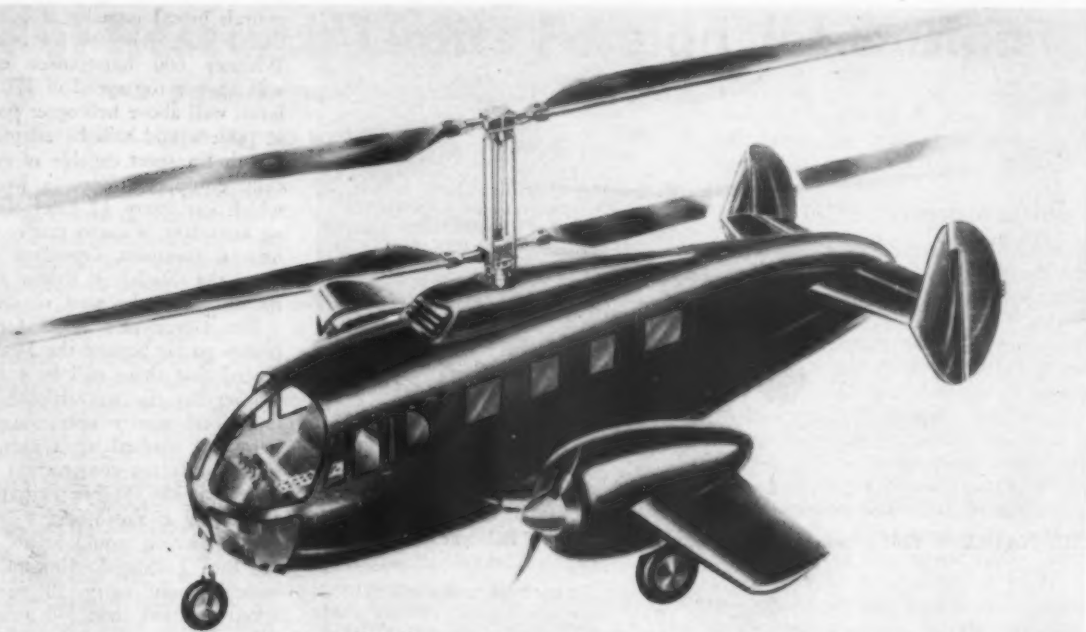
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PROMISING GYRODINE prospect is Model 3 Helidyne, combining helicopter characteristics with 170-mph forward speed.

Korean War Gives Impetus to Convertiplane

Military shows interest in hybrid craft; Gyrodyne, with one flying, works on several more.

By JAMES J. HAGGERTY, JR.

LONG regarded with disinterest by the military, the convertiplane, that hybrid aircraft which combines the forward characteristics of a normal airplane with the vertical flight capabilities of the helicopter, is about to come into its own.

The Korean war focused attention on the peculiar capabilities of the helicopter in a wide variety of tactical applications and brought about the current large scale helicopter procurement program. By the same token, it may be said that the Korean war will probably also be the making of the convertiplane.

For although there is no sign of a sudden shift away from the helicopter and toward the convertiplane, military leaders are taking a long look at the convertiplane, the plane they scorned as "Buck Rogers" idea only a couple of years ago. They are aware that the convertiplane can do anything a helicopter can do and, in addition, they realize that it might be the answer to the one law in the helicopter's versatility—lack of speed.

Interest of the military in the convertiplane has already been evidenced on a minor scale by the award of three Air Force contracts for development of

designs. Bell Aircraft Corp. is working on a tilting rotor design, wherein the rotors, mounted at wing tips, shift their axes to become propellers for forward flight.

Sikorsky Aircraft Division is working on another type—the retractable rotor design, which has fixed wings and a forward propulsion unit plus a rotor which can be braked to a stop and retracted during flight.

McDonnell Aircraft Corp. is working on a third type—the unloaded rotor category, with a rotor for take-offs and landings plus fixed wings for forward flight. While the military explores the possibilities of these designs, which are still a long way from flight stage, a small comparatively unknown rotary wing company has actually been flying a convertiplane for some time.

The company is Gyrodyne Co. of America, now located at St. James, Long Island; the plane is the "Helidyne," America's first true convertiplane and still the only one to reach flight stage.

The Helidyne is an adaptation of Gyrodyne's Model 2, which was simply a coaxial type helicopter, which has two rotors, one on top of the other, operating off a single pylon and rotating in opposite directions. Gyrodyne is a firm believer in this type of rotor system, claiming for it these advantages:

- Smallest operational stowage space of any helicopter of equal capacity.
- Greater maneuverability under downwind or cross wind conditions.
- It requires the least amount of shafting of any transmission driven helicopter and concentrates all transmission gear and shafting in a small area near the top of the fuselage.
- Substantial center of gravity travel.
- Inherent stability and elimination of servo tabs, gyroscopic bars, offset hinges drag hinges or articulating hinges, simplifying both production and maintenance problems.

In converting from the coaxial helicopter to the convertiplane in its prototype Helidyne, Gyrodyne simply mounted a pair of Continental 85 horsepower engines, with propellers, on either side of the fuselage, diagonal drive shafts connecting the power plants to the rotor transmission.

Ready This Month

Having proved in actual flight the practicability of this configuration Gyrodyne is now reconstructing the Helidyne for a Navy flight evaluation, to be ready for resumption of flight tests about Nov. 15.

After that, Gyrodyne will start work on a new convertiplane, the Model 3 Helidyne.

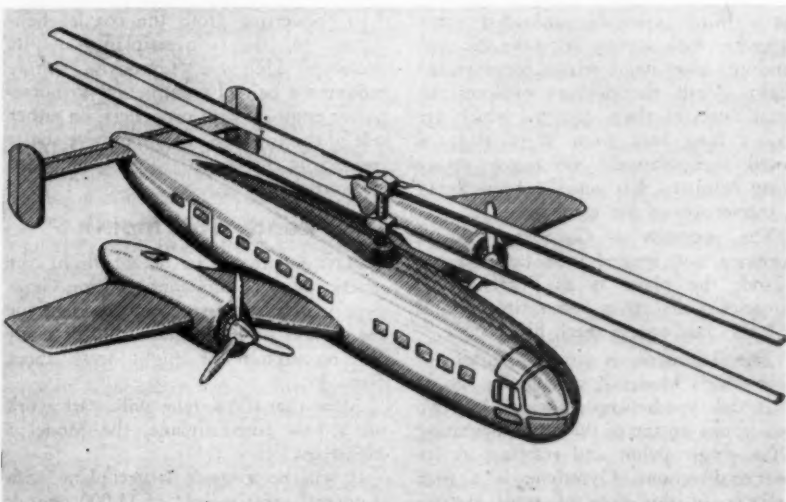
It will be a much larger plane with a normal gross weight of 11,000 pounds and, an overload condition (12,800



THE NATION'S FIRST true convertiplane, the Gyrodyne "Helidyne."



MODEL 21 CARGO COAXIAL, entered in the recent Navy unloader competition.



MODEL 8 GYROLINER, a 50-ton, 50-passenger, 350 mph local service airliner.

pounds gross) capacity of 5,000 pounds useful load. Powered by two Pratt & Whitney 600 horsepower engines, it will have a top speed of 170 miles per hour, well above helicopter potentialities at present and will be adaptable as an assault transport capable of carrying 16 fully equipped troops, a hospital ship which can carry 12 litter patients and an attendant, a cargo carrier or a commercial transport. Gyrodyne expects to have the Model 3 flying about nine months after the start of construction.

But Gyrodyne's plans for convertiplanes go far beyond the Model 3. Convinced that there will be a commercial market for the convertiplane in short-haul local service operations, the company has worked up a number of designs for future construction when and if this market appears. Perhaps the most interesting is the Model 8 "Gyroliner," a plane which would be about the size of the Lockheed Constellation and which would carry 50 passengers at speeds of more than 350 miles per hour (see photo).

Will Use Turboprops

Power plants for the Model 8 would be turboprops, mounted on stub wings outside the fuselage driving a coaxial rotor system similar to that in the prototype Helidyne. The current design is built around the Allison T-40-A-8 engine, which develops up to 7,100 horsepower, thereby giving the Gyroliner a total of more than 14,000 horsepower, grossing in the neighborhood of 100,000 pounds.

Gyrodyne has a number of designs in the convertiplane field, but at the same time the company is keeping an eye on the helicopter field. It was a very active competitor in the Navy's recent cargo unloader helicopter (won by McDonnell) with a design known as Model 21 which could carry a useful load of 25,000 pounds. Model 21 is a "flying crane" type, which would lift a cargo pod, but the crane portion of the plane could also be fitted with a cargo hold.

Gyrodyne was formed in 1946 by Peter J. Papadakos, formerly of Curtiss-Wright, Bell and Grumman, to exploit the possibilities of the coaxial rotor system and the four-bladed rotor.

Financially, the company is in good shape. Gyrodyne recently completed a fully subscribed stock issue of 34,320 shares of \$1 par Class A common stock at \$5 per share. To tide it through its expansion period, until it can crash the military helicopter or convertiplane market, Gyrodyne is taking on subcontract work gradually. The company already has two subcontracts for parts for the Grumman F9F and F10F jet fighters and is negotiating for more work.

Lack of Research Limits Foreign Jet Design

U. S. can produce superior transport when the time is right, prototype group says.

THE best civil transports the British and other European countries have been able to build, and those now in the design stages, are performance-limited by obsolescent aerodynamic designs, according to the formal report of the European Survey Group of the Prototype Aircraft Development Committee. Once U. S. designs are initiated the aerodynamic, structural and production know-how of U. S. manufacturers will provide superior aircraft.

This competitive vulnerability of European transport designs is directly related to the lack of emphasis on basic research, the survey group found. During their three-week tour, which included visits to eight aircraft manufacturers, six airlines and five national civil aviation agencies, the group saw no evidence of privately or cooperatively-owned wind-tunnel facilities.

The "greatest single advantage" of European countries is the operational experience gained with flying test beds and actual prototype designs. This is best visualized by the realization (see chart) that the British have accumulated over 2800 hours of operating experience with nine types of civil turbine transports. Canada is in second place with about 280 hours on the Aveo Jetliner, France in third place with 25 hours on the Nene-powered Bretagne. The United States is fourth with only 15 hours of civil turbine transport time.

In practice, this means that the British have a three-to-five-year lead over the U. S. Moreover, it means that, despite the promising long-range position the U. S. may hold, the de Havilland Comet may enjoy two years or more of competition-free operation before U. S. airlines can expect to have American-built transports of this type.

\$400 Million for Jet Lead

Since 1943, when the presently operating program was laid down, the British government has been paying \$400 million for its lead in jet transport development. Some of this money may be returned in the form of fixed payments required as the government-sponsored aircraft are sold commercially. In this field the government can expect returns on 25 de Havilland Comets allocated as shown here:

Panair do Brasil	3
Avon-powered Comets for Dec. 1954 delivery	
French Compagnie Maritime des Changeurs	2
Ghost-powered Comets	

Canadian Pacific Airways	2
Ghost-powered Comets	
British Overseas Airways	18
9 Ghost-powered, 9 Avon-powered.	
Total Comets on order	25

Estimated cost of the Ghost-powered Comet minus radio and buffet is \$1,260,000 and of the Avon-powered Comet \$1,442,000. Reported government stake in the Comet, minus engine development costs, is \$4,200,000.

The government-sponsored turboprop-powered Vickers Viscount 700 is on order by three airlines for a total of 44 aircraft, as follows:

British European Airways	28
Aer Lingus	4
Air France	12
Total	44

Reported selling price of the Viscount is \$500,000.

Britain's support of civil transport developments is by no means unique. No new transport having civil characteristics, the Survey Group reported, has been developed in Europe without government aid. Typical examples:

The Bristol Brabazon
Short Brothers Princess Flying Boats
de Havilland Comet
Vickers Viscount
Armstrong Whitworth Apollo
Bristol 175 Britannia
Bristol 173 Helicopter
de Havilland Dove
Handley Page Marathon
SE-2010 Armagnac
Breguet 763 Deux-Ponts
SO.30P Bretagne
Nord 2501
SE-1120 Ariel Helicopter
SE.95 "Corse"

Much has been said about the unfavorable economics of operating turbine-powered aircraft. Studies by KLM Royal Dutch Airlines show that the Viscount 700 has lower costs per ton-mile than the Convair 340, and the Comet has lower costs than the Lockheed L-749A Constellation.

The combination of poor deliveries with regular inventory problems makes it necessary for KLM to maintain an \$11 million stock of U. S.-built parts at all times. Swissair has a similar inventory of \$4 million.

The real promise lies in the U. S. claim that this country can produce a superior jet transport when the time is right. For the first time in the history of aviation, there appears to be a period ahead when transport design speed will be stabilized for as much as 10-12 years.

This stabilization will result when transport speeds reach about 600 miles per hour, the goal of current U. S. manufacturing effort.

600 MPH Transportation

Control problems associated with transonic speeds (Mach .9 to 1.1 or 1.2) preclude consideration of continuous operation in this speed range. Transport speeds will reach 600-plus miles per hour in the near future, probably in the first U. S. transport design. CAA-imposed operational margins will keep this top cruising speed at about 600. This is a good 100 miles per hour more than the speed of the Comet, fastest of the current foreign transports. Result is that transports in the Comet class will be obsoleted in a few years' time. Latter types, such as those proposed by U. S. manufacturers, will have a low obsolescence rate governed by the estimated 10 years required to push transport speed from 600 to 900 miles per hour, clear through the transonic zone.

Some interesting facts uncovered by the Survey Group:

- Hand tooling practices of European countries, and particularly Britain, as opposed to elaborate U. S. aircraft manufacturers' tooling, provide a pricing advantage in low-volume production of aircraft.
- Noise problem around airports, directly related to jet operations, is still unsolved. British European Airways is "extremely concerned."
- The Vickers 660 bomber, now being considered for U. S. production, is also being seriously considered as a future transport design in Britain.
- Airborne radar is universally in demand among foreign operators. Provisions are being made in all late transport designs for collision and thunderstorm avoidance radar.
- High cost of helicopter operations is universal and the major obstacle to rapid commercial acceptance.
- North Atlantic Comet operation is practical only with the Avon-powered Comet, a plane which will probably be 50% heavier than the Ghost-powered Comet.
- A \$16,000, 350-pound static-thrust Turbomeca engine for use as an assisted take-off device for DC-3's is under consideration by SNCASO to permit upping DC-3 gross to 29,000 pounds.
- de Havilland favors a spread of 40 miles per hour between normal operating and design and dive speeds—the factor that will determine top cruising speed of transports below the automatic ceiling of transonic flight.



A TURBOPROP-POWERED CONVAIR T-29 navigation trainer has been ordered by the U. S. Air Force in "limited" numbers." Plane is powered by two Allison T-38 turboprop engines rated at 3,000 hp each and is stressed for a more advanced version of the engine when it becomes available. Convair figures on the prototype Convair Turbo Liner, built under contract for the Allison Division of General Motors, indicated that its top speed would be 350 miles per hour.

Exclusive Details on German Airline Plans

Old Lufthansa may be rebuilt, starting with equipment, personnel of foreign carriers.

By WAYNE W. PARRISH

GERMAN civil aviation is re-awakening. Already there is a complete organization set up under the Ministry of Traffic in the new government of Western Germany at Bonn.

As soon as the western powers make it possible, Germany will be rapidly on the road to re-establishing an international airline network to take up where its prewar world-wide Lufthansa organization left off.

Ever since the end of the war other airlines have been serving Germany both domestically and internationally. Two American carriers, Pan American (serving Berlin, Frankfurt, Dusseldorf, Bremen, Hamburg, Stuttgart and Munich), and TWA (serving Frankfurt) are engaged in German traffic. But Scandinavian Airlines System, KLM, Air France, BEA, Swissair and a few other airlines have been very active serving one or more German cities.

When Germany gets the go-ahead and

has sovereign rights again over its own territory, all of the airlines now serving the country will have to bargain for new traffic rights. The Occupation powers have been liberal in permitting almost everyone to serve the country in the interim.

The question arises, how fast can Germany re-establish her airline when she has no equipment and her former airline personnel are either gone or have been without training for a long time? Lufthansa, while excellent in its day, was a pre-war operation. Air transport has moved far ahead in the meantime.

Bargaining Point

The answer can be given in several ways. Although Germany lacks equipment and won't have much money to spend on new airplanes, the race by other airlines to obtain favorable traffic concessions places the Germans in a good trading position. It is quite likely that any one of a half-dozen carriers would be glad to "lend" planes to the Germans in return for favorable traffic rights.

The same holds for personnel. While the Germans, being very nationalistic, will want to retain full control over their own airline, they might well be willing to take non-German personnel as a starter until their own nationals are trained.

Those Germans now making plans to revive civil aviation may or may not be fully aware of how far air transport

1950 Commercial Traffic

	Aircraft movements	Pas- sengers	Mail (lbs.)	Freight (lbs.)
Frankfurt	6,563	195,330	3,554,557	8,034,721
Hamburg	5,807	110,346	1,358,524	6,481,237
Berlin-Tempelhof	2,096	118,202	1,836,813	4,608,170
Berlin-Gatow	2,598	82,291	1,317,034	4,059,871
Dusseldorf	3,081	55,376	607,114	1,327,777
Munich	2,666	53,004	232,526	1,828,800
Stuttgart	1,610	16,793	104,539	1,166,651
Nuremberg	726	6,873	68,765	347,219
Hanover	464	10,552	363,268	420,923
Bremen	539	5,305	15,840	379,469
Total	26,150	654,072	9,458,980	28,654,838

has progressed since 1939 which virtually marked the end of German transport development.

12-Year Lag

Twelve years is a long time in a fast moving industry. The Germans have farther to catch up than they probably realize. Few have traveled outside of their own country since the start of World War II. The state of development of air transport in the U. S., for example, would probably bewilder them.

Deutsche Lufthansa (DLH), the German national airline, is in liquidation, but there have been reports out of Germany that a new company may be formed out of the old. At its recent general meeting in Hamburg, Deutsche Aero Lloyd, a company which holds a 26% interest in Lufthansa, decided to change its capital from 10,600,000 Reich marks to 1,060,000 D-marks by the calling in of its own shares to the value of 171,000 Reich marks. This modernization of the company's capital structure is indicative of the general preparation which German commercial and industrial circles are making for the revival of German aviation.

Meantime the aviation division of the West German Transport Ministry at Bonn has recently been enlarged. Dr. Knipfer, an old-timer in German aviation and recently assistant to the president of the German Airport Association, has become chief of the division.

Sees Big Future

Dr. Knipfer has pointed out in recent press statements that although world airline traffic has increased twelve-fold in the past twelve years, foreign companies operating in Germany are only hauling twice Deutsche Lufthansa's 1938 traffic. Thus he sees a big future for commercial aviation in Germany and, of course, he wants a German airline to carry the bulk of the traffic.

An interesting comparison between aircraft movements in the first eight months of 1939 and the 12 months of 1950 is given in the following table:

Aircraft Movements

	1950	Jan. 1—Aug. 31, 1939
Berlin	4,689	17,600
Bremen	539	1,929
Düsseldorf	3,081	1,437
Frankfurt	6,563	7,534
Hamburg	5,807	4,735
Hannover	464	3,566
Munich	2,666	5,131
Nuremberg	726	3,389
Stuttgart	1,610	2,836
Total	26,145	48,157

It is interesting to note that in 1950 commercial passengers at all German

German Civil Aviation

Here is the present organization plan of new civil aviation activities in the West German government and the two Deutsche Lufthansa organizations:

Ministry of Traffic

All government civil aviation functions are within this ministry which in German is called the Bundesverkehrsministerium, with headquarters at Bonn. The Minister is Dipl. Ing. Seeborn. Within this ministry is the:

Department of Civil Aviation;

which is called Abteilung Luftfahrt, and the chief of which is Dr. Knipfer, long in German aviation and formerly chief of the department of aerial defense in Berlin. Under Dr. Knipfer is a small administrative office headed by Mr. Frenzel, and four major departments as follows:

1. **Legal**, headed by Oberregierungsrat Dr. Huebner, whose assistant is Mr. Wegert, well known expert in legal affairs of civil aviation.

2. **Technical and Development**, headed by Oberregierungsrat Dr. Kuebler, who was a member of the technical department of the Ministry of Aviation during World War II.

3. **Traffic**, headed by Mr. Kriepe who was a general and for a short time chief of staff of the German Air Force, and who conducts almost all of the negotiations between representatives of foreign carriers as well as all negotiations with foreign airplane production plants. The assistant chief is Dr. Schmidt-Ott, formerly assistant to the manager of the traffic department of DLH, Deutsche Lufthansa. Dr. Schmidt-Ott is currently the liaison officer to CAB, Wiesbaden.

4. **Safety Measures and Ground Organization**, headed by Ministerialrat Kütler, who was in government civil aviation work before the war.

Planning Section

An independent office within the Ministry of Transport has been established to coordinate all questions and prepare organization plans pertaining to civil aviation. The chief of Hans M. Bongers, formerly traffic manager for DLH, Deutsche Lufthansa. The address of this office is Kaiser-Wilhelm-Ring 20 I, Cologne. Mr. Bongers' assistants are Mr. Bohlmann, formerly assistant traffic manager of DLH, and Mr. Hölte, former engineer for technical development of DLH. It is probable that Mr. Bongers will increase his staff in the near future.

Deutsche Lufthansa (DLH)

The one-time extensive German airline is currently in liquidation but some of the officers are trying to save the share capital in order to found a new German airline company. President is Dr. Weigelt, member of the board of directors, whose address is 29 Hölderlinweg, Bad Homburg. Dr. Reister, a trustee and nominated as director of DLH in liquidation, is former chief of commercial and revenue department of the airline. He resides in Munich.

DLH Association

The Association of former members of DLH, Deutsche Lufthansa, the prewar German airline, known as Notgemeinschaft der früheren Luftthansanten, has been established to take care of interests of former employees of DLH. Chief aims are pensions and employment. The chairman is W. Hädrich, formerly sub-director of the commercial department of DLH. The address is Albrechtstrasse 42 I, Berlin-Tempelhof.

airports totalled 654,072 against 326,000 in 1939 reflecting, among other things, the larger seating capacity of 1950 airplanes compared to the much smaller equipment of 1939.

While a German airline will be

formed to serve domestic needs, it is clear in the planning at Bonn that international routes will have top priority. These are needed to help re-establish German foreign trade and to earn foreign currency.

Interview—HAROLD R. BOYER, *Chairman*

Aircraft Production Board

Since his appointment as DPA Deputy Administrator for Aircraft Production and Chairman of the agency's Aircraft Production Board July 26, Harold R. (Bill) Boyer has carefully canvassed the airplane and engine production scene in an effort to determine why aircraft are not being turned out in accordance with the schedules laid down by the military.

He quickly discovered that the shortage of special machine tools to produce jet engine parts was the leading bottleneck and convinced other government officials that machine tool producers needed help in obtaining materials, labor and higher prices.

With the government doing all it could to step up machine tool output, Boyer next concentrated on what he likes to call "unrealistic" airplane schedules. Since airframes without engines can accomplish nothing, he

asked the military to revise airframe schedules to make them jibe with the availability of engines. This is now being done.

Next step will be a dual one: increased production and imports of the critical materials needed in jet engines and expansion of capacity to produce aluminum aircraft forgings.

Boyer is no novice at ironing out production bottlenecks. He is now on leave from his job with General Motors Corp. where he holds the title of director of production engineering. In the aircraft field, he served as director of the aircraft manufacturing division of the War Production Board in World War II and later worked on plane engine production for GM's Chevrolet division.

Report on Aircraft Production

Q. Mr. Boyer, what will the planned realignment of production schedules mean to airframe, engine and propeller manufacturers?

A. Realignment of schedules will primarily affect production of certain aircraft, bringing them more realistically in line with the availability of engines. Propeller schedules will not be materially affected. I see no point in tying up critical materials by building airframes to sit around on airfields awaiting engines.

Q. How long will it be before engine output is high enough to permit large-scale production of finished aircraft?

A. I would say that it will be at least a year.

Q. Will 'realistic' scheduling cause a delay in the Air Force's goal of 138 wings by July of 1954?

A. It will involve a delay of at least six months—possibly more.

Q. In other words, it will be January, 1955, before we can hope to reach the 138-wing goal?

A. That's right. In obtaining this goal, we do not plan to go into the all-out industrial mobilization phase of the use of production facilities.

163-Wing AF in 1956

Q. How long would it take to attain a 163-wing Air Force if Congress approves?

A. Carrying on production capacities at the then-maintained level will mean it will be sometime in 1956 before we can hope to attain 163 wings. Of course, a lot would depend on the composition of those wings.

Q. Many comments have been made on how far behind this country is in plane production. What is your opinion?

A. I really don't feel that we are behind in the production schedules at all. Previously issued schedules have been entirely unrealistic and were never possible of achievement short of an all-out war effort. There was no attempt to reconcile productive capacity with planned schedules.

Q. A great deal has been said about machine tools in the last few months. When will we hear an end of that problem?

A. I don't think we'll hear an end to that discussion within the next two years.

Nickel Critical

Q. But once we get machine tools cleared up we can really get into aircraft production?

A. That's right, assuming we have adequate amounts of strategic materials like nickel, cobalt, columbium and the other alloying elements on the hot side of the engine. We still don't know how to build the jet engine without nickel, and that appears to be the major limiting factor in the program.

Q. How are we progressing in attempts to build up production and imports of strategic materials?

A. We are still far behind. In many instances during this transition period, we have had to turn to the stockpile.

Q. Back on machine tools for a moment. American manufacturers are purchasing machine tools in Europe at the same time we're sending similar tools over there via the Economic Cooperation Administration. How do you account for that?

A. I'm unable to reconcile that process at all. It's completely contrary to my philosophy and I just don't understand it.

Q. Aside from machine tools, what is the biggest overall deterrent to aircraft production at present?

A. Availability of engines and so-called "B" products.

Q. There have been reports that military aircraft losses in Korea are exceeding monthly production. Is there any truth in that?

A. That is definitely not true. It may have happened one certain day where losses were greater than that particular day's output but, from what I know of the attrition in Korea, our production greatly exceeds actual losses.

'Transport, lightplane output will be maintained'

Q. How does present production of military planes compare with June 1950 and what will it be a year from now?

A. Production in airframe weight today is approximately twice what it was a year ago. I think a realistic schedule would indicate that it will double again within the next year.

Q. Is it our present policy to have alternate sources of supply for all military aircraft items?

A. Yes. In some cases we are planning more than two sources.

Q. There have been numerous reports of airframes being parked on manufacturers' runways waiting for engines or parts. How extensive is this situation?

A. In the case of engines, I know of only one instance and that one involved a difficulty which has since been resolved. As far as getting planes into the air because of the shortage of electronic equipment and the like, there are numerous cases, but I wouldn't say they are anything really serious. The Air Force is accepting a few items to permit manufacturers to get paid even though the items are still incomplete.

Q. What percentage of 'delivered' planes are really only partially ready?

A. I have no way of ascertaining that but I would guess it isn't over 10%—probably less than that.

Q. Another aircraft production bottleneck is the shortage of aluminum forging capacity, especially in areas like Fort Worth and Tulsa, which are hundreds of miles away from the source of supply. Does the APB plan any action to solve the forging problem?

A. You are discussing both the availability of aluminum ingot and heavy presses. The Air Force now has a program involving some 26 presses, both forging and extrusion, and these presses, generally speaking, will be located all across the country. One facility is planned for California, but to the best of my knowledge none is scheduled for the Texas area at the moment.

NPA Probes CMP Problems

Q. Is any action planned to remedy the present situation whereby many aircraft manufacturers find their approved CMP orders won't be accepted by mills?

A. NPA's aluminum section and the industry advisory committee have discussed that problem. I think we'll probably have some more trouble along that line in the first quarter of next year. But starting in the second quarter, I think our aluminum expansion program will provide the necessary balance between the military phase and the civilian phase, which utilizes a greater amount of sheet than of rod and bar.

Q. Will production of transports for U. S. and foreign airlines be kept at present levels?

A. I think it will. At the last minute we always seem to be able to come up with enough materials to maintain transport production schedules for the following quarter. I personally am a firm believer in a strong, healthy airline setup in the U. S. In case of emergency, we always have a

completely manned organization immediately available to the military.

Q. How about the Air Coordinating Committee's recommendation that we maintain lightplane output at 3,500 planes a year?

A. Indications now are that that, too, will be maintained. In most instances, this type of facility does not jeopardize nor clash with the military program to any great degree.

Q. It has been estimated that the aircraft industry will need a million new workers in the next two years. Does APB plan any steps to set that it gets them?

A. We have no plans to enter the manpower picture other than to consult with existing agencies and try to channel people into the aircraft industry if that should prove necessary. But I think the transition period will be long enough to obviate any pronounced labor shortage. We hear about the shortage of engineers and technicians, but that situation always exists during the buildup phase. That's just one of the growing pains of

any expansion program.

Q. Still on labor. The industry has just undergone a series of crippling strikes and more may be on the way. How does APB fit into the aircraft strike picture?

A. APB brought important aircraft strikes to the attention of all existing government agencies, screaming to high heaven about their effects, not only on the immediate picture but also on projected schedules. We have legally constituted organizations to handle strikes; if it proves inexpedient for them to step in right away, that is not our fault. The APB has neither a legal nor any other power to step in and settle strikes.

Q. What plans have you made with respect to NPA's Aircraft Division and APBA at Dayton?

A. In the foreseeable future they will retain their present status. APB has no desire to get into the operational end of the field. If it ever did become operational, there would be no end of the necessary organization. We plan to operate strictly in an advisory and consulting capacity on the policy-making level.

Q. Do you think the government will ever permit the aircraft industry to shrink again as it after World War II?

A. I doubt seriously that the industry will ever again go down into the doldrums to that extent. The public is now air-minded enough not to permit such a condition to arise.

Q. Much has been said about guided missiles. Is the missile program something immediate?

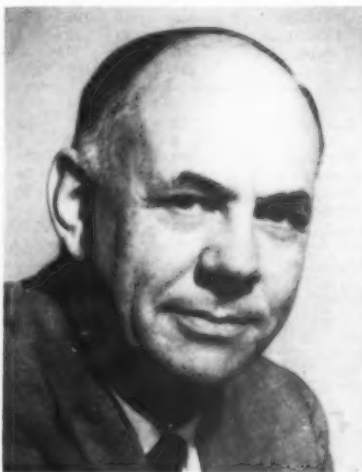
A. No. A rather extensive program is planned but within the next three or four years, missile output will be very small compared to aircraft.

Q. Then the day of push-button warfare is quite a way off?

A. I would say that it is much farther off than we are led to believe in the day-to-day reportings of the press.

Q. How about these 'fantastic new weapons' we've been hearing about?

A. They are fantastic only in the imagination of certain individuals.



Harold R. Boyer

Non-Air Carrier Aircraft Production Timetable

Aircraft Model	Engines Number & Type	Propeller Model	Quarterly Periods											1954 1st
			1951 4th	1952				4th	Total	1953				Total
Aero Design & Eng. L-3805	2 Lyc. GO-435-C2	Hart. HC12X	15	15	22	27	29	93	29	29	27	29	114	32
Beech 35	1 Cont. E-185-11	Beech 35-960025	105	102	102	102	102	408	102	102	102	102	408	102
Beech 18	2 P&W R-985-AN14B	H.S. 22D30-201	12	12	12	12	12	48	12	12	12	12	48	12
Beech 50	2 Lyc. GO-435-C2	Beech 214-101	5	12	30	36	36	114	36	36	36	36	144	36
Total Beech			122	126	144	150	150	570	150	150	150	150	600	150
Bell 47-D1	1 Fr. 6V4-200-C32	..... Rotor	3	3	4	5	3	15	3	3	3	3	12	3
Bellanca 14-19	1 Lyc. O-435-A	Hart. HC12-20	12	12	12	12	12	48	12	12	12	12	48	12
Call A-3	1 Cont. C-125	.....	3	3	3	3	3	12	3	3	3	3	12	3
Cessna 170	1 Cont. C-145-2	McC. DM7653	180	180	180	130	90	580	90	90	90	90	360	90
Cessna 190	1 Cont. W-670	H.S. 2B206135 A-15	20	24	24	24	24	96	18	15	15	15	63	15
Cessna 180	1 Cont. E-225-C	Hart. HC12X	...	...	...	30	90	120	120	120	120	120	480	120
Cessna 310	1 Cont. E-225-C	Hart. HC12X	...	...	...	...	...	...	...	...	1	15	16	29
Total Cessna			200	204	204	184	204	796	228	225	226	240	919	254
Helio H-391	1 GO-435-C2	.....	...	30	36	36	36	138	36	36	36	36	144	36
McDonnell 79	..... Jet	.....	...	...	32	36	36	104	36	36	36	36	144	36
Mooney M-18-C	1 Cont. A-65-S	Flot. 65A66	4	4	11	6	6	27	7	9	9	9	34	9
Mooney M-18-L	1 Lyc. O-145-B2	Flot. 63L60	5	4	11	6	6	27	6	9	9	9	33	9
Total Mooney			9	8	22	12	12	54	13	18	18	18	67	18
Piper PA-18	1 Lyc. O-290-D	Sen. 76AM56	155	150	163	174	174	661	174	174	174	174	696	174
Piper PA-20	1 Lyc. O-290-D2	Sen. 76AM56	150	129	129	129	129	516	129	129	129	129	516	129
Total Piper			305	279	292	303	303	1,177	303	303	303	303	1,212	303
Regent Rocket	1 Lyc. GO-435-C2	.....	9	22	24	27	25	98	25	25	27	25	102	22
Taylorcraft 19	1 Cont. C-85-12F	.....	24	24	27	27	24	102	24	27	27	24	102	24
Taylorcraft 15	1 Cont. C-145	.....	42	42	42	42	42	168	42	42	42	42	168	42
Total Taylorcraft			66	66	69	69	66	270	66	69	69	66	270	66
GRAND TOTAL ALL AIRCRAFT			744	768	864	864	879	3,375	904	909	910	921	3,644	933

PRODUCTION SCHEDULE of non-air carrier aircraft through early 1954 is revealed by manufacturer, type and number in the above chart, which shows tentative allocations of critical materials.

Personal Planes Limited to Essential Users

Manufacturers, distributors agree to restrict sales; production schedules outlined.

FOR the first time in aviation history, the entire lightplane industry's plans for non-air carrier aircraft production over a three-year period have been thrown open for everyone to see.

Preliminary indications are that this production blueprint, presented to the Air Coordinating Committee by the Civil Aeronautics Administration, puts certain new manufacturers in business while limiting the production of others to meet limited availability of materials.

From now on the sale of non-air carrier aircraft will be allocated according to the essentiality of the proposed use to which the purchaser intends to put the aircraft.

Allocations Voluntary

Both the aircraft manufacturers and their distributors have agreed to a voluntary and self-policed allocation of new aircraft to essential users. Fortunately, at this time, the list of essential users is very liberal, covering use in

government, business and agriculture, public transportation, training and maintaining airmen proficiency, fixed-base operations, etc.

When initially surveyed by CAA, these manufacturers estimated their projected yearly production at 4,550 aircraft. Since this was 30% above the established limit of 3,500 non-air carrier aircraft for which materials were being scheduled, these projections were modified to bring the totals within the framework of the lower figure. It might be noted that in 1952 the total is only 3,375 aircraft, but in 1953 this is up to 3,644 and proportionately higher for early 1954.

Among the newcomers included in the production schedules are Aero Design & Engineering Company and Helio Corp. Aero Design and Engineering recently completed the first production model of the Aero Commander, a twin-engined transport which has found popular acceptance in the industry dur-

ing the past year. Materials are allocated for the production of 15 Aero Commanders during the last quarter of 1951, 93 during 1952, 114 during 1953 and 32 in the first quarter of 1954.

Helio Corp., manufacturer of the Helioplane, is planning production of the four-place H-391 in place of the original H-3 model. The Helioplane's high performance operation, particularly its take-off and landing characteristics and low minimum flying speed, have interested both military and civil users, but no regular production has yet been accomplished.

The materials program makes provisions for production of 30 H-391's in the first quarter of 1952, with a total of 138 for the year, 144 for 1953 and 36 for the first quarter of 1954.

Civil Jet Helicopter

This report also gives first official indication of civil production of the jet-powered McDonnell 79 helicopter, starting in the second quarter of 1952 with about 12 units per month planned, and the Cessna 180 and 310. Production on the 180 would start in the third quarter of 1952 and a year later for the 310.

1954
al 1st

4 32
8 102
8 12
4 36
0 150

2 3
8 12
2 3
0 90
3 15
0 120
5 29
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3 9
7 18

3 174
5 129
2 303

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2 24
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NOVEMBER 12, 1951

23

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AMERICAN AVIATION

When New Airline Planes Will Be Delivered

Air Carriers	Manu- facturer	Agency†	Plane Model	Engines Number-Make-Model	Airplane Contract Num- ber	Quarterly Periods									
						1951- 4th	1952				1953				
							1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th Total
Braniff Airways	Douglas	CAB	DC-6	4 P&W R-2800-83A	50-41	1	..	..	..	..	..	..	..	..	..
Slick Airways		CAB	DC-6A	4 P&W R-2800-CB-17	50-40	1	..	..	..	..	..	3	..	..	3
American Airlines		CAB	DC-6B	4 P&W R-2800-CB-16	50-9	5	..	..	..	..	..	3	..	..	3
Western Air Lines		CAB	DC-6B	4 P&W R-2800-CB-16	51-10	..	..	..	1	3	4	1	..	..	1
Panagra		CAB	DC-6B	4 P&W R-2800-CB-16	50-34	1	1	..	..	..	1	..	..	..	..
Pan American		CAB	DC-6B	4 P&W R-2800-CB-17	50-30	4	5	6	3	..	14	..	..	..	..
United Air Lines		CAB	DC-6B	4 P&W R-2800-CB-16	50-3	..	..	6	6	..	12	..	..	..	..
National Airlines		CAB	DC-6B	4 P&W R-2800-CB-16	51-6	..	..	..	2	4	6	..	..	..	..
National Airlines		CAB	DC-6B	4 P&W R-2800-CB-16	51-31	..	..	..	..	2*	2	..	..	..	..
American Airlines		CAB	DC-6B	4 P&W R-2800-CB-16	N.A.	..	..	..	..	..	..	(24)	..	..	24
American Airlines		CAB	DC-6A	4 P&W R-2800-CB-16	N.A.	..	..	..	..	..	..	(6)	..	..	6
Flying Tiger		CAB	DC-6A	4 P&W R-2800-CB-17	N.A.	..	..	..	..	..	..	(7)	..	..	7
United Air Lines		CAB	DC-6B	4 P&W R-2800-CB-16	N.A.	..	..	..	..	1	1	1	..	..	1
Continental Air Lines		CAB	DC-6B	4 P&W R-2800-CB-16	N.A.	..	..	..	..	..	..	2	..	..	2
Total Douglas		CAB				12	6	12	12	10	40	8	2	(37)	47
SAS		ECA	DC-6B	4 P&W R-2800-CA-15	50-50	..	2	..	..	..	2	..	..	..	..
SAS		ECA	DC-6B	4 P&W R-2800-CB-17	50-57	..	..	..	1	5	6	..	..	..	..
Swissair		ECA	DC-6B	4 P&W R-2800-CB-17	50-25	..	..	..	..	1	1	..	..	..	..
KLM		ECA	DC-6B	4 P&W R-2800-CB-17	50-30	..	4	3	..	..	7	..	..	..	..
SABENA		ECA	DC-6B	4 P&W R-2800-CB-17	51-23	..	..	..	..	..	..	2	4	..	6
T.A.I. (French)		ECA	DC-6B	4 P&W R-2800-CB-17	51-24	..	..	..	..	..	..	3	..	..	3
Philippine Air Lines		ECA	DC-6B	4 P&W R-2800-CB-17	50-50	..	1	1	..	..	2	..	..	..	..
CPA		ECA	DC-6B	4 P&W R-2800-CB-17	51-29	..	..	..	..	2*	2	1*	..	..	1
Swissair		ECA	DC-6B	4 P&W R-2800-CB-17	N.A.	..	..	..	..	..	..	(3)	..	..	3
Total Douglas		ECA				..	7	4	1	8	20	3	7	(3)	13
Arab. Amer. Oil†		OIT	DC-6B	4 P&W R-2800-CB-17	50-48	..	1	..	1	..	2	..	1	2	..
C.M.A. (Mexico)		OIT	DC-6B	4 P&W R-2800-CB-16	51-25	..	..	..	..	..	..	..	1	2	..
Total Douglas		OIT				..	1	..	1	..	2	..	1	2	3
Grand Total Douglas						12	14	16	14	18	62	11	10	(40)	63
Eastern Air Lines	Lockheed	CAB	1049	4 WAC 956-C18CA-1	LD-76A	5	9	..	..	..	9	..	..	..	..
TWA		CAB	1049	4 WAC 975-C18CB-1	LD-75	..	..	10	..	..	10	..	..	..	..
Eastern Air Lines		CAB	1949C	4 WAC R-3350-34	LX-89	..	..	..	..	..	..	..	7*	9*	16
Total Lockheed		CAB				5	9	10	..	..	19	..	..	7	16
Air France		ECA	1049C	4 WAC R-3350-34	LX-87	..	..	..	..	..	3	6	1	..	10
KLM		ECA	1049C	4 WAC R-3350-34	LX-82	..	..	..	..	..	6	3	..	..	9
Trans-Canada		ECA	1049C	4 WAC R-3350-34	LX-90	..	..	..	..	..	..	..	..	5*	5
Qantas Empire		ECA	1049C	4 WAC R-3350-34	N.A.	..	..	..	..	..	..	..	..	1	1
Total Lockheed		ECA				..	..	..	..	..	9	9	1	6	25
PAK Air Ltd.	Lockheed	OIT	1049C	4 WAC R-3350-34	LX-88	..	..	..	..	..	..	..	..	1*	2*
Grand Total Lockheed						5	9	10	..	..	19	9	9	9	44
Eastern Air Lines	Martin	CAB	404	2 P&W R-2800-CB-3	1117	21	13	6	19	..	38	..	..	..	..
TWA		CAB	404	2 P&W R-2800-CB-16	1116	12	11	18	..	..	29	..	..	..	..
Grand Total Martin						33	24	24	19	..	67	..	..	..	..
Northeast Airlines	Convair	CAB	340	2 P&W R-2800-CB-16	..	..	..	..	..	..	1	1	2*	..	4
United Air Lines		CAB	340	2 P&W R-2800-CB-16	..	..	1	6	11	9	27	3	7	3*	13
Braniff Airways		CAB	340	2 P&W R-2800-CB-16	..	..	..	1	4	6	11	6	3	..	9
Hawaiian Airlines		CAB	340	2 P&W R-2800-CB-16	..	..	..	..	1	3	4	1	1	..	2
Chicago & Southern Air Lines		CAB	340	2 P&W R-2800-CB-16	..	..	..	..	..	..	..	(10)	..	..	10
Continental Air Lines		CAB	340	2 P&W R-2800-CB-16	..	..	..	..	1	1	2	4	1	..	8
Delta Air Lines		CAB	340	2 P&W R-2800-CB-16	..	..	..	..	3	3	3	3	1*	..	7
Mid-Continent		CAB	340	2 P&W R-2800-CB-16	..	..	..	..	..	..	1	3	2*	..	6
Total Convair		CAB				..	1	7	17	22	47	19	19	8	46
Philippine Air Lines	Convair	ECA	340	2 P&W R-2800-CB-16	..	..	..	..	..	..	2*	1*	..	..	3
Arab. Amer. Oil†	Convair	OIT	340	2 P&W R-2800-CB-16	..	..	..	2	..	2	..	..	..	..	..
Aero O.Y. (Finnish)		OIT	340	2 P&W R-2800-CB-16	..	..	..	..	1	1	1	1	..	..	2
Total Convair		OIT				..	..	2	1	3	1	1	..	..	2
Texas Co.†	CAA	340	2 P&W R-2800-CB-16	..	..	..	..	1	..	1	..	..	..	..	..
Boett & Whitney†	CAA	340	2 P&W R-2800-CB-16	..	..	..	..	..	1	1	2	..	..	..	..
Grand Total Convair						..	1	7	20	24	52	22	21	(10)	61
Los Angeles Airways Sikorsky	CAB	S-51	1 P&W R-1340-S3H3	..	1*	..	1*	..	..	1	..	..	..	..	..
GRAND TOTAL ALL AIRCRAFT						51	48	58	53	42	201	42	40	(50)	158

† Addition to C-3 program.

‡ Non-carrier aircraft included in this schedule for convenience in handling.

§ Canadian Division of NPA.

¶ Claimant Agency handling request to National Production Authority.

(*) Numbers in parentheses are aircraft ordered since Sept. 12 for which no specific delivery dates, by quarter, are available.

CIVIL TRANSPORT DELIVERY SCHEDULE to foreign and domestic airlines and to certain industry users is shown here for the period through 1953. Included are 410 transport aircraft, including 201 to be delivered in 1952 and 158 during 1953.

NOVEMBER 12, 1951



CLOSE-UP OF ICEGUARD on an Avro Jetliner discloses installation details.

New Thermal De-icer for Thin-Wing Jets

Goodyear Iceguard, effective on Avro Jetliner, may see wide use on military planes.

THE experience of A. V. Roe with the Goodyear Iceguard on the Avro Jetliner and the U. S. Air Force decision to use the new electro-thermal boots on the Lockheed F-94C fighters indicate that this type of ice protection may see widespread application to jet aircraft and general acceptance in less critical applications.

The Goodyear Iceguard is relatively new, having accumulated about 800 hours of total flight time, but much of this has been under aggravated test conditions. For instance, two hours after the Avro Jetliner was officially authorized to make flights in icing conditions it encountered icing over Cleveland. The boots did fine.

Bed of Rubber

Heart of the Iceguard system is a network of small electrical wires (see X-ray photo) imbedded in a thin layer of rubber. The design of this system is the by-product of Goodyear's long-standing work with electro-thermal de-icing for propellers. In these propeller installations, Goodyear used both conductive rubber and wire imbedded in rubber to provide heat to the critical area of the prop blades. Experience indicated that the imbedded-wire type would prove most acceptable for wing and control surface protection.

The principle was not new. The National Research Council of Canada had developed the electro-thermal principal of de-icing now applied in the Iceguard. Goodyear has made its contribution with the development of a practical method of applying these principles in production aircraft installations. Working with Safeway Heat Element, Inc. of Middle-

ton, Connecticut, Goodyear arrived at a wire grid arrangement which could be imbedded in rubber with the required close tolerances.

Will Reduce Weight

Total thickness of the Iceguard boot is only one-tenth of an inch. At present its weight runs about .8 pounds per square foot, but this can be reduced to .5 pounds. Goodyear is working toward that goal. The thin rubber element housing is attached directly to the surface to be de-iced by means of rubber cement. Only preparation of the surface is used of a metal primer.

The entire installation of the F-94 is made in one half day by four men. The largest single unit made to date is a 17-foot strip used on the horizontal stabilizer of the Jetliner. Otherwise, the Iceguard system is a series of smaller elements designed to meet the needs of a specific installation. On the Jetliner it

consists of nine sections, and on the F-94 ten sections are used.

The electrical wiring of the Iceguard is such that any section of the de-icing element is only "on" about 1/10 of the time when the boots are operating. In the Jetliner installation, for instance, a small 1½ inch wide strip running the full length of the wing leading edge is on continuously when icing conditions are anticipated. Otherwise, the two six-inch wide strips immediately behind this (top and bottom chord of wing) are automatically cycled on and off, while the rearmost sections can be controlled independently of those in the critical leading edge area.

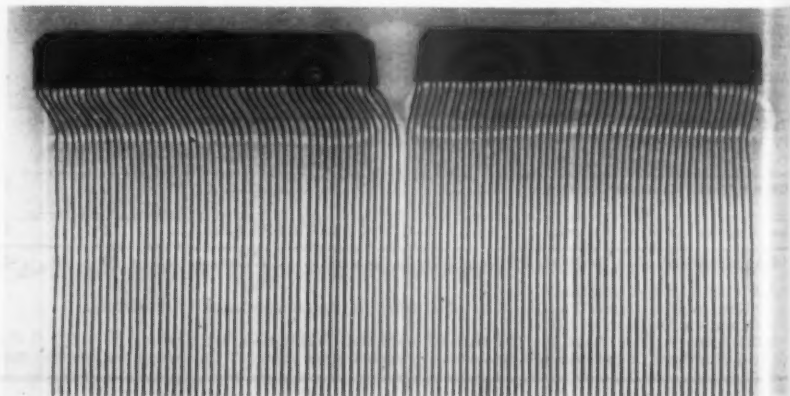
This electrical arrangement minimizes the power requirements of the system. In practice, the system requires about 15 watts per square inch. This is an intermittent power drain on all but the narrow leading-edge strip that operates continuously during icing conditions.

Three-Phase Supply

Power requirements are met by a 120-208 volt three-phase supply. In the Jetliner 115 volts of alternating current at 400 cycles is provided by two Pioneer-Eclipse alternators supplying the 43-kilowatt demand of the Jetliner system.

The Goodyear Iceguard is particularly well-suited to the thin wings of jet fighters because it eliminates ducting within the wing — a necessary feature of other thermal de-icing systems. Ordinarily the requirements of a boot on the aerodynamic surface would minimize its other advantages but, since the boot does not pulse in the manner of pneumatic systems, aerodynamic losses are very small. Avro officials have said that the aerodynamic effect of the boot on the Jetliner is negligible.

While the initial installations are on wings and tail surfaces for over-all ice protection, indications are that Iceguard will see widespread use for antenna mast protection, small air scoops, tip tanks and other critical icing areas.



X-RAY PHOTO shows precision layout of electrical wiring imbedded in rubber.

Douglas XF4D Powered By Westinghouse J-40

Douglas Aircraft Co. has completed installation of a Westinghouse J-40 in its XF4D carrier-based supersonic interceptor for the Navy and is now moving its flight test program into the high-speed ranges.

The J-40 is the jet engine for which the airplane was designed, but, as so often is the case, the airplane was ready before the engine, and the craft has been undergoing flight tests at Edwards Air Force Base since last January powered by a J-34.

The Westinghouse J-40 is one of the more powerful turbojets announced so far. Just what thrust the engine develops in the XF4D has not been disclosed. The J-40, when first revealed, was rated at 7,500 pounds dry thrust, or 9,800 pounds with afterburner.

15,000 Lbs. Thrust

Subsequently, an official statement rated the engine at "equivalent to 14,000 horsepower at higher speeds." Navy statements hinted that eventually the engine will develop up to around 15,000 pounds thrust with afterburner.

Since it is an interceptor, the XF4D makes use of an afterburner for more rapid climb. It is designed for catapult takeoff.

In basic configuration, the XF4D is generally described as having a modified delta wing. E. H. Heineman, chief engineer of the Douglas El Segundo division where the airplane was designed and produced, is not wholly in accord with this description.

There is no firm and enduring definition for the term "delta" as applied to airplane structures, but its original conception was in the form of an equilateral triangle. The XF4D wing assuredly fails of this limitation. In addition to being anything but equilateral, the XF4D is resplendent with smoothly sweeping curves which are a far cry from the sharp pointed corners of the triangle.

It is Heineman's viewpoint that the XF4D wing is a normal and orderly development in the growth of the conventional aircraft wing. It just looks radical.

Douglas has a Navy order for production of a limited number of the supersonic F4D-1's for carrier operation and is engaged in erecting the tooling for the job. Russell Thaw, Douglas test pilot who flew the F3D in this all-weather fighter's evaluation tests for the Navy at Patuxent, is now doing the flight testing of the XF4D prototype with the new J-40 installed at Edwards Air Base, and hints from the desert test center indicate excellent high performance reports are likely to be forthcoming soon.



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ROOMY AUSTER LIGHTPLANE is designed for military or civil passenger-cargo use. It carries five passengers.

New Ambulance-Freighter Produced in Britain

Auster Aircraft may equip plane with Continental engine to increase performance.

THE NEW British multi-purpose lightplane, Ambulance/Freighter, may be equipped with the Continental E 190 engine and American instrumentation, according to its manufacturer, Auster Aircraft, Ltd.

Unveiled by Auster at the 1951 SBAC air display at Farnborough, the new plane is at present powered by the 180-bhp Cirrus Bombardier 702 engine.

Capable of carrying five passengers, Ambulance/Freighter also has military application in liaison work, telephone cable laying, supply dropping, field postal delivery and pickup, and in photo-recon work. Its civil uses include crop dusting and spraying, rescue work, surveying, powerline inspection, and off-line mail delivery.

Ambulance/Freighter's specifications are:

Length24 ft. 8 in.
Wingspan37 ft.
Wing area189.75 sq. ft.
Maximum gross weight2600 lbs.
Cargo area110 cu. ft.
Payload for max. range (300 miles)
.....500 lbs.

Its performance at 2600 lbs.:
Total take-off distance to 50 ft.
.....415 yards
Max. cruising speed105 mph
Initial rate of climb730 ft./min.

Tests show that the plane, when equipped with the Continental E 190, shows considerably increased performance. The bigger American engine in-

creases gross operating weight by 100 pounds, boosts cruising speed up to 112 mph, and cuts 30 yards off the take-off run.

Quick Change

Design of the fabric-covered, steel-tube fuselage permits quick change in plane application. Lightweight floor behind the pilot can be removed by withdrawing six bolts. For alternate jobs, other floors can be fitted with a single opera-

tion. Basic floor permits use as ambulance, freighter, liaison, or passenger plane. A single- or double-tiered stretcher guide ramp can be bolted to the right of the pilot, with attendant's seat fitted beside it (see cut).

In freight operations, entire fuselage floor is cleared except for pilot's seat. The rear-loading door, 39 inches wide, is removable; or it can be swung open permitting entry of rectangular crates as large as 36 x 38½ inches. With door removed, cargo longer than freight compartment can be loaded and allowed to trail behind, if center of gravity is within specified limits.

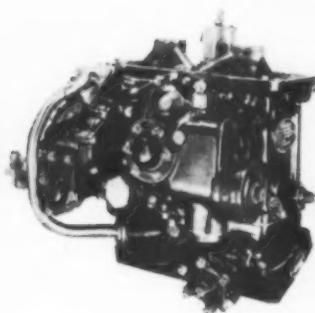
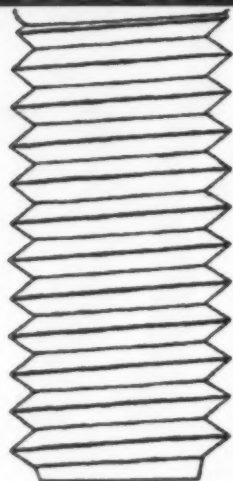


AMBULANCE FREIGHTER can carry two litter cases, attendant and pilot.



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De-Humidifier For Production B-47's

A centrifugal-type water separator for use in reducing the humidity of air entering the cockpit of fighters and bombers has been developed by Boeing Airplane Company and is now being programmed for installation in production Boeing B-47 Stratojet bombers. Known as "Gushing Gertie" and operating at about 80% efficiency, the new Boeing unit weighs about four pounds.

Boeing interest in the project resulted when pilots flying the B-47 experienced snow storms, rain and fog inside the airplane when humid air from the air conditioning system precipitated. Despite elaborate methods of controlling air temperature, no means of controlling humidity was available. "Gushing Gertie" is not the final answer. At air temperatures below freezing, ice tends to form in the separator. Boeing engineer Bob Walker (shown above holding his hand in a plume of fog as it emerges from the unit) is working on this problem.

Airline Coach Services Extended Three Months

All domestic scheduled coach services have been extended by the CAB for 90 days beyond the current expiration date of Dec. 31.

Two reasons were given for the move: (1) to enable the airlines to accept advance bookings and plan operations and scheduling beyond Dec. 31; (2) to permit more time for completion of a CAB staff study of the coach problem.

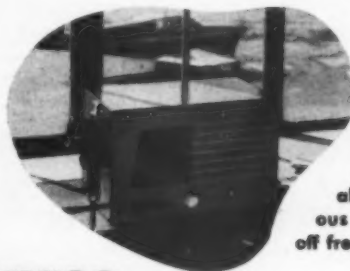
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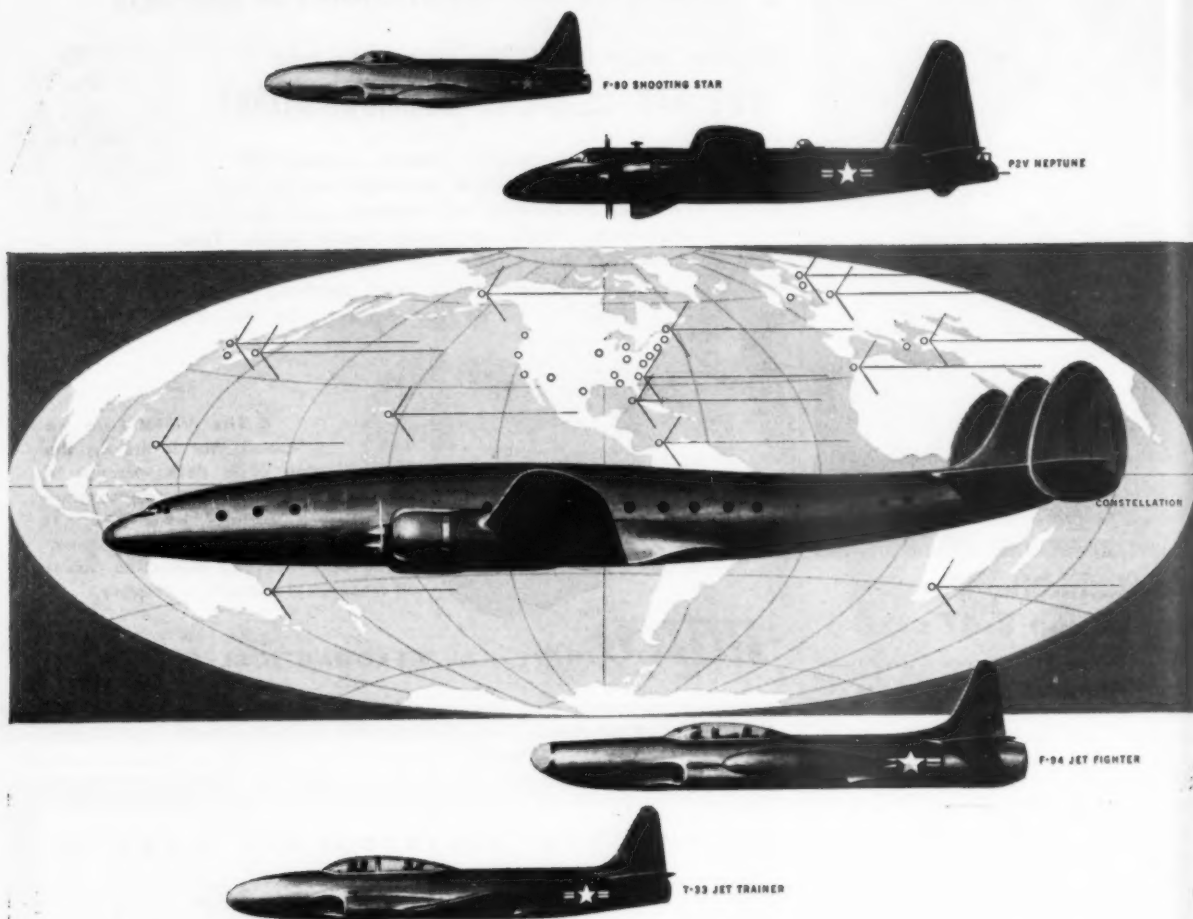


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...To sift from operational experience the facts that help Lockheed build even greater aircraft.



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Its far-reaching Field Service Department is another example of Lockheed leadership in action. Over 80 highly skilled technicians maintain constant vigil throughout the world, helping guarantee dependable performance of Lockheed airplanes.

On Korea's battlefields, in the Arctic, at desert bases—everywhere—Lockheed Field Service Representatives are on hand to advise, instruct and assist the men who fly as well as those who service Lockheed aircraft.

Equally important, and even more vital to the future of aviation, is the research function of Lockheed's Field Service. Day in and day out, records are kept and reports are filed, evaluating military and commercial planes, checking performance under every operating condition . . . building up a tremendous library of flying and functional data which help in designing even greater aircraft for the future.

Commercial service as well as military

This same continual assistance is given the operators of Lockheed commercial airplanes—the 15 leading world airlines that daily fly Constellations over every continent and every ocean. The intelligence thus gathered is made available to all Constellation operators, further assuring Lockheed dependability.

One of many examples of valuable assistance in the field occurred recently when the British Overseas Airways Corporation suffered serious damage to its base in Filton, England. A Lockheed Field Service Representative conferred with BOAC officials, checking damage to aircraft, loss of spare parts, and destroyed facilities. Then a message to Lockheed's well-stocked U.S. warehouse speeded necessary parts to Filton immediately and restored full operation far sooner than BOAC thought possible.

This world-wide service is well worth its million-dollar annual cost . . . permits life-long follow-through on each airplane produced . . . backs Lockheed's reputation for dependability based on experience.

Production Spotlight

Smart Idea: Boeing Airplane Co. is trying a new angle to help ease the engineer shortage—training non-technical personnel as draftsmen. The new training program, which will consist of a five-week, eight-hour day course, is open to employees of the company or prospective employees; employees will be paid while taking it. Boeing feels that non-technical personnel can learn the basic principles of drafting work sufficiently well to assist engineers in the preparation of engineering drawings, thereby leaving the engineers free to devote more of their time to design work.

Expansion Notes: Goodyear Aircraft Corp. is adding a 50,000 square foot building to its Akron, O., facilities . . . AiResearch Manufacturing Co. of Arizona will build a \$700,000, 54,000 square foot addition to its plant, expanding the facility to 154,000 square feet . . . Lockheed Aircraft Corp.'s new plant at Bakersfield, Calif., designated Plant 8, is now ready for occupancy. The plant will turn out parts for the Super Constellation . . . Boeing Airplane Co. has issued invitations to 18 construction firms to bid on a five story engineering-office building at Plant 2 in Seattle, Wash. Construction is expected to start between December 15 and January 1 . . . Fairchild Camera and Instrument Corp. will build a new \$3,000,000 plant for manufacture of aerial cameras, radio direction finders and other defense equipment at Jericho, Long Island, N. Y. . . . Sprague Engineering and Sales has completed a new two story, 20,000 square foot building at Gardena, Calif., which will enable the company to triple production of specialized aircraft test equipment . . . American Pulley Co. will build a \$2,000,000 plant in the Philadelphia area for the manufacture of parts for the Wright J-65 jet engine . . . Crosley Division of AVCO Manufacturing Corp. has started construction of a new \$5,500,000 plant near Cincinnati, O., for production of fire control equipment. . . .

\$40 Million Backlog: Twin Coach Aircraft Division, Buffalo, N. Y., expects to reach peak production this month. Employment has now reached 1,200 and the company has increased its backlog to \$40,000,000.

Another Aircraft Division: Hussman Refrigerator Co., St. Louis, Mo., has organized an aircraft division, to be housed in new facilities built last year. The company already has a number of contracts for manufacture of aircraft parts and subassemblies and negotiations for additional work are in progress. Volume production will be reached some time next spring.

Research to Production: Stanley Aviation Corp., Buffalo, N. Y., plans to shift emphasis from research and development work to production early next year, with a substantial employment increase over the present 190 contemplated. The company's backlog is now up to \$3,000,000, half of which is in orders for new type "bail-out" seats developed by Stanley under contract to the Air Force.

New Die-Molding Technique: A demonstration of a new Armour Research Foundation method for controlling the molding of aircraft dies will be held at The Glenn L. Martin Co.'s plant in Baltimore, Md., on November 15-16. A similar demonstration was held October 30-31 at Northrop Aircraft's plant in Hawthorne, Calif. Armour's new technique was developed at the request of Aircraft Industries Association and Air Materiel Command's Production Resources Division.

Another Smart Idea: Lockheed Aircraft Corp. has opened its new indoctrination center for training new employees in basic fabrication and assembly techniques, like riveting, drilling, etc. An initial "pilot" class of 30 employees has started the first course. Located in North Hollywood, the new center will be able to handle up to 350 workers on a two-shift basis. It will make possible more hiring of women and others having no previous experience.

For Testing Sapphires: Industrial Sound Control, Hartford, Conn., has received a \$480,000 contract from Wright Aeronautical Corp. for renovation of 12 engine test cells to be used for test work on Wright's J-65 Sapphire jet engine. J. J. H.

Between the Lines

Who Will Succeed Vandenberg?

By James J. Haggerty, Jr.

GEN Hoyt S. Vandenberg's appointment as Chief of Staff expires next April 30. This has brought up the question, in military circles, as to who would succeed him if he is not reappointed. Actually, there is little reason to believe that he would not be reappointed if he chose to stay on in the job, but there is the possibility that he may choose to retire voluntarily.

It is a difficult thing to pick a winner in the Chief of Staff sweepstakes, since the Air Force doesn't put out press releases as to the relative ranking of the USAF hierarchy, and as a matter of fact the top brass themselves are not too sure as to just which one of them is the favorite son.

Norstad and LeMay

For some time it has been the impression of observers that the choice of a successor could be narrowed down to two major candidates—Lt. Gen. Lauris Norstad, commander of the USAF in Europe, and Gen. Curtis E. LeMay, commanding general of Strategic Air Command. Lately, however, observers are not so certain. Both LeMay and Norstad are comparative youngsters in the USAF high command and have plenty of time to work up to the top spot. It is felt that perhaps the next Chief of Staff might be an older man, although both Norstad and LeMay are definitely to be considered.

Besides Vandenberg, the USAF has five four-star generals, including three recent nominees who will undoubtedly be confirmed by Congress. These include LeMay, Joseph T. McNarney, Nathan F. Twining, John K. Cannon, and Benjamin W. Chidlaw. The USAF has authorizations for two other four-stars still to be named. Consensus is that Norstad and Lt. Gen. William E. Kepner will be the recipients. It is very likely that, if Vandenberg retires or is not reappointed for some other reason, the successor to the Chief of Staff post would come from this group of seven.

Twining is now Vice Chief of Staff, or No. 2 man. This does not mean that he would automatically accede to the top spot, but it puts him in a commanding position. Twining, now 54, is a West Pointer, not as important a factor in the Air Force as in the Army, but definitely a point of consideration.

McNarney, although commissioned in the Air Force, is not actually in the USAF at the moment, nor has he been since 1949, when he became chief of the Department of Defense Management Committee. Now 58, he is also a West Point graduate.

Cannon's current assignment is commanding general of Tactical Air Command, one of the three major operational commands. The oldest of the seven mentioned, he is now 59 and will be over 60 by the time for consideration of a new appointee, if there is to be one. Cannon is not a graduate of the Point.

Chidlaw is commanding general of Air Defense Command, another of the three major domestic operational commands, and prior to that was head of Air Materiel Command, where he did what is generally regarded as a very fine job of running the procurement and service command. Now 50, he is a West Pointer.

Kepner runs the Alaskan Command, which is an

overall theater command rather than an Air Force command. Not a West Pointer, he is 58.

LeMay heads the third, and in the Air Force view, the most important of the three domestic operational commands—Strategic Air Command, which operates our retaliatory bombing force. He is 44, not a West Pointer.

Norstad, youngest of the seven by a few months over LeMay, has in addition to his USAF assignment as commander of USAFE, probably the most important operational post of all—commander-in-chief of the Allied Air Forces in Central Europe under Eisenhower. A West Pointer, he is 44.

The USAF also has 11 three-star generals, any one of whom could conceivably be appointed to the top post. Outstanding among them candidates are Edwin W. Rawlings, commanding general of Air Materiel Command; Earle E. Partridge, who ran the Fifth Air Force in Korea and who is now commanding general of the Air Research and Development Command; Laurence S. Kuter, former Military Air Transport Service chief and now Deputy Chief of Staff, Personnel; Orval R. Cook, Deputy Chief of Staff, Materiel; Idwal H. Edwards, commandant of the Air University; and Otto P. Weyland, commanding general of the Far East Air Forces in Tokyo. In this group, Rawlings and Edwards are senior from the standpoint of date of rank, both dating back to October 1, 1947. It is possible that either one might get one of the two remaining four-star grades and thereby join the top seven mentioned above. The others all received their third stars this year and it is considered unlikely (although not impossible) that they could move into the top spot after only a year of three-star rank.

McNarney Passed Over

McNarney, a four-star general since 1945, has been passed over twice for the top job, weakening his position. Cannon, until his very recent nomination for four-star rank, had been a lieutenant general since 1945 and his age is also a factor against his selection. Kepner is the lowest ranking of the seven, having been in three-star grade only since June, 1950, but he is well thought of in top circles and must be considered an important contender.

Norstad, extremely well-liked in and out of the service, is one of the most brilliant officers ever to enter military service, in the opinion of most observers. Perhaps the only point against his selection is his comparative lack of operational service; he served most of his top-level time in staff positions. But he is now getting that much-needed operational service in Europe.

LeMay's brilliant war record in both Europe and the Pacific is well known; he is probably the top operational man in the USAF high command. Twining and Chidlaw are notably good administrators and both compiled good operational records in Europe during the war. Twining has the advantage, of course, of being in the No. 2 spot now.

There's the line-up and one is certainly sticking his neck out to attempt to pick a winner. But if one observer's opinion is worth anything at all, we would call it in this order: Twining, Norstad, LeMay, Chidlaw.

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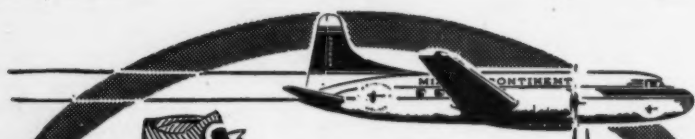
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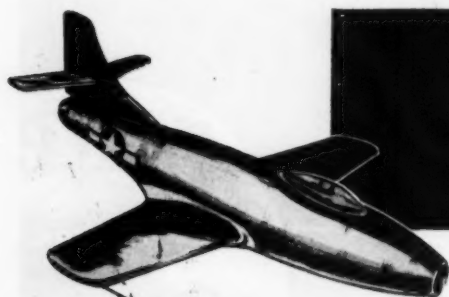
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West Coast Representative
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3911 San Fernando Road
Glendale, California



Industry Personnel



Byron



Lundquist

Frank R. O'Leary, Eugene M. Lokey and James G. Byron have been elected vice-presidents of Curtiss-Wright Corp. while W. G. Lundquist has been named to a similar post in Wright Aeronautical Corp. A. R. Weckel has been appointed general sales manager of the Sperry Gyroscope Co.

Eaton Manufacturing Co.'s Spring Division has chosen F. I. Goodrich general manager and E. H. Lindeman and H. H. Clark assistant general managers . . . William Rowley will manage the Dayton office of Aeroquip Corp. . . . Floyd H. Lawson, Jr. has been selected staff assistant to the vice president and general manager of Link Aviation Inc.

Consolidated Vultee's Guided Missile Division has chosen Quentin C. Turner manager of industrial engineering . . . John N. Eustis has joined Piasecki Helicopter Corp. as subcontracts manager . . . W. A. Bortner and J. D. Rauth have been named assistant chief project engineers for aircraft and weapons for The Glenn L. Martin Co. while Jasper F. Burt became divisional superintendent in charge of factory operations at Plant 2.

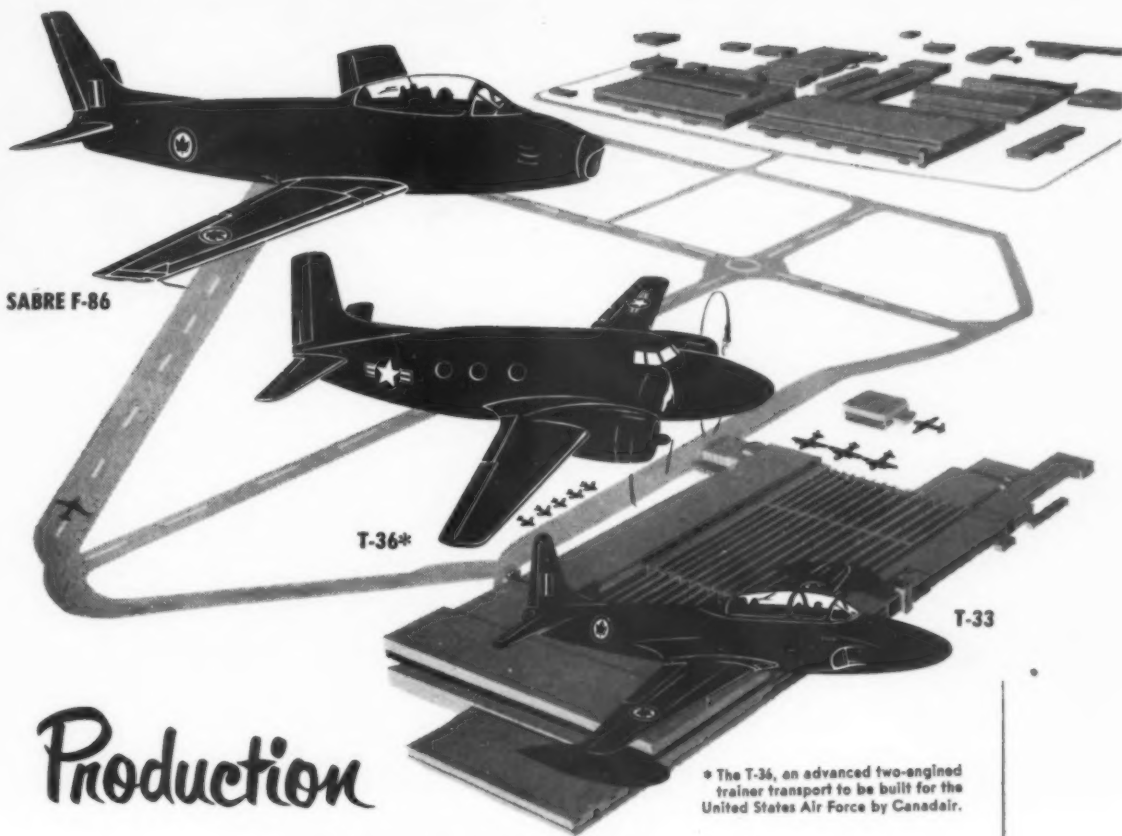
John E. Pixton has joined the Washington office of Allison Division, General Motors Corp., as manager of field engineering . . . Rear Adm. James D. Barner, new elected vice president of Gyrodyne Co. of America, will be the Washington representative.

Kellett Aircraft Corp. has hired Dr. Gerhard J. Sisingh as an aerodynamicist . . . Lockheed Aircraft Corp. has named E. A. Peterman project engineer on its XC-130 cargo plane while Lockheed Aircraft Service elected J. J. Arostegui assistant treasurer.

James H. Ingersoll has been elected a vice president of Ingersoll Products Division, Borg-Warner Corp. . . . A. B. Scoles has been named resident administrator of the Guided Missiles Division, Consolidated Vultee Aircraft Corp.

R. W. Cornell, v.p.-manufacturing, has been elected a director of Parker Appliance Co. . . . Don Young has been named service manager for General Motors Corp.'s Aeroproducts Division . . .

Brown Instruments Division, Minneapolis-Honeywell Regulator Co. has named W. J. Blackburn industrial manager at Denver; Donald D. Baker industrial manager at Kansas City; Bernard J. Alberts and Jack F. Smith to similar posts at Wichita and Tulsa, respectively.



SABRE F-86

T-36*

T-33

* The T-36, an advanced two-engined trainer transport to be built for the United States Air Force by Canadair.

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FOR DEFENSE

Today, Canadair-built deadly F-86† Sabre jet interceptors form part of the vanguard of Western air defenses . . . soon, future front line pilots of Canada and America will fly Canadair-built T-33† jet trainers and T-36† advanced trainer transports . . . a growing contribution to ever greater strength in the air.

Canadair is one of the world's most modern aircraft factories . . . equipped with the finest of machinery . . . where more than 9,000 skilled aircraft workmen and first class designers are employed. Canadair is fully equipped to design and produce all types of military or civil aircraft under the most advantageous manufacturing conditions. Inquiries invited.

†Made under license respectively from North American Aviation Inc., Lockheed Aircraft Corp., Beech Aircraft Corp.

Canadair

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The rapid development of aviation in Canada over a short period of years is dramatically summarized in the story of Trans-Canada Air Lines. In just 14 years, TCA has expanded its routes from 122 miles to 177,000 and, as Canada's national air service, has made impressive air transport history. Today, TCA ranks as one of the world's largest international air carriers, flying more than 100 scheduled flights each day over routes which span the globe.

TCA's Canadair-built North Star aircraft have made next-door neighbours of Canadians from coast to coast, providing a twenty-hour air service across a 3,000 mile expanse.

CASI-BUST



EVERY American Jet engine flying today is equipped with PESCO Fuel Pumps

Ever since the emergency call came in 1941 for a failure-proof fuel pump that would stand up and deliver fuel to jet engines under conditions never before encountered, Pesco has paced the industry in the development of high-pressure fuel pumps.

Pesco designed and built the first fuel pump for the first American-built jet engine, and since then new models have come from Pesco engineering laboratories in rapid succession to meet the fast-changing and exacting demands of the military.

Today, every American jet engine in the air is equipped with Pesco fuel pumps. A few representative models are shown above. They range from the first simple, single element pump that produced 275 gph at 100 psi, to today's double element (main and emergency pump in a single housing) pump that delivers nearly 2000 gph at 1200 psi.

Setting the pace for jet engine fuel pump development is only one of Pesco's important contributions to safer, faster, more dependable aircraft. It is experience that can be of real help to you.

Why not call Pesco today.

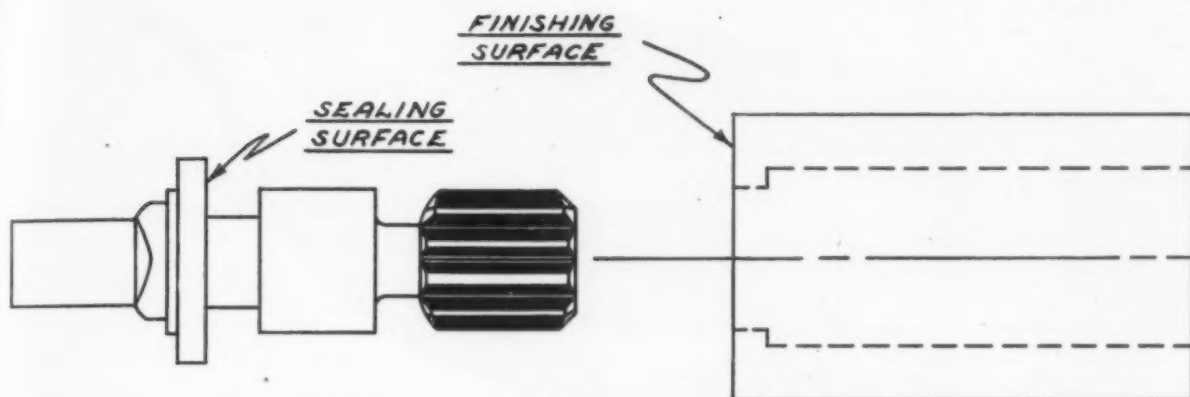


PRODUCTS DIVISION

BORG-WARNER CORPORATION

24700 NORTH MILES ROAD

BEDFORD, OHIO



ALL-AMERICAN AIRWAYS uses this easily machined facing tool for refinishing sealing surfaces on fuel pump drive shafts.

Among Local Service Lines

(This is the second in a continuing series of notes on improvements in Douglas DC-3 equipment and procedures used by local service air lines to improve their operation, maintenance and earning potential.

Each month operators are asked to contribute their ideas on a question-

naire provided by AMERICAN AVIATION. No set style will be used. The information will be published as soon as possible after receipt with the length and detail of each item dependent on the material submitted. We trust this information will be of service to all operators.)—Ed.

Trans-Texas Airways has been actively making useful changes in its fleet of DC-3's. Some of the recent changes as related by TTA's Chief Engineer Charlie Baker:

- **Step Door Hydraulic Snubber.** In order to reduce seal leakage at the lower end of the hydraulic snubber for the step door, TTA has reworked the lower end by machining a groove for an additional AN6227-15 "O" ring between the piston rod and end. Time required for extension of the cylinder may be varied by increasing or decreasing the diameter of the bleed hole in the orifice ring. TTA feels diameter of this hole should not exceed .050.

- **Ignition Harness Sealing.** To prevent excess moisture from entering the spark plug from the ignition harness lead, one gasket (P/NA-1479) is being installed on the top side of the spark plug cigarette. This dead soft copper gasket prevents entrance of moisture and contamination of any kind into the plug barrel. This is the time of year when moisture problems are most critical in TTA's operation.

- **Landing Gear Bungee Boots.** Due to occasional burning of the canvas type bungee boots, Trans Texas is now using a boot made up of a neoprene fiberglass combination. This material has proved to have excellent fire resistant characteristics and a much higher resistance to chaffing.

- **Ignition Systems.** Wiring installations are now being made in all aircraft in TTA's fleet to provide for use of a portable type Sperry Engine Ignition

Analyzer. Installation will be of the portable-airborne type where a temporary installation will be readily available for flight tests.

All-American Airways has developed a successful method of refinishing the sealing surfaces of the fuel pump drive shaft (see drawing), thus eliminating replacement. Process involves making an inexpensive facing tool made from one-inch bar stock, mounting it in a lathe and lapping the sealing surface.

According to R. G. Wagener of AAA's Maintenance Engineering, the tool is made from 1-inch bar stock, drilled one-half inch through and back-drilled $\frac{3}{8}$ inches, leaving a $\frac{1}{8}$ inch lip at the end. The tool is mounted in a lathe chuck and grade A lapping compound is applied to finish rough. Then it is cleaned and 4A compound applied for a smooth finish. After each operation, it is important that the tool lapping surfaces be refinished to make certain that a clean, flat surface is available for the next operation. Fifteen minutes is all that is required for resurfacing, against an approximate \$3.65 for replacement.

Southern Airways has inaugurated the use of aluminum pigmented varnish for landing gear painting. This material has proved resistant to sand abrasion and discoloration from grease and engine and hydraulic oils. This varnish (name of manufacturer provided on request) provides the landing gear with a "chrome-plated" finish. Maintenance of the finish is negligible.

Pilot Blamed in NAL Philadelphia Accident

"Captain's error in judgment in landing the aircraft too far down the slippery runway instead of executing a missed-approach procedure" was cited by the CAB as probable cause of a National Airlines accident involving a Douglas DC-4 at Philadelphia International Airport January 14, 1951. Of the 25 passengers, including three infants, and a crew of three, six passengers and the stewardess were killed. The airplane was substantially destroyed by impact and fire.

On a flight from Newark, Captain Howell C. Barwick was informed that local weather at Philadelphia was precipitation ceiling of 500 feet, sky obscured, snow and smoke in the area. Cleared to land at Philadelphia, Captain Barwick reported he broke out of the overcast at 500 feet and that he made a normal but slightly high approach to avoid possible landing hazards. After touching down, he considered there was still room to stop, but the airplane passed beyond the end of the runway and crashed into a ditch at the east boundary of the airport. Fire broke out, and fire-fighting efforts could not extinguish the blaze.

Captain Barwick, who had a total of 22 hours in DC-4's, reported that he could see the lighted runway throughout its entire length. When no effective braking action occurred, emergency air brakes were applied 1,000 feet from the end of the runway with no effect.

The Board reported that the pilot's decision "to land at a point which, even under favorable conditions, would be considered marginal to allow stopping does not reflect the judgment and highest degree of care which the public is entitled to have exercised by airline pilots in whose hands their safety rests."

After additional training, Captain Barwick has returned to National as a captain.



FIGHTERS, FREIGHTERS line up outside Lockheed Aircraft Service hangars at Burbank. Note F-80 tail sections at left.

\$19 Million LAS Backlog Still Growing

Lockheed Aircraft Corp. subsidiary overhauls, modifies and services lightplanes to bombers.

LOCKHEED Aircraft Service, which has modified, overhauled or handled maintenance on more than 20 different types of aircraft in a single year—and in large numbers—now has over \$19 million worth of business on the books and the backlog continues to grow. The service organization's work has ranged from Convair B-36's to Piper Cubs.

Ever since 1939, when Lockheed established its Parts and Service Division in Amsterdam in The Netherlands, the company has consistently shown an above average and continuing interest in its planes and equipment after these products reach its military and commercial customers. The organization formed to handle this type of service in 1939 expanded during World War II into the Service Division, with seven major overhaul bases employing some 10,000 people at key points overseas.

Since 1947, the activities of this group have been integrated into a wholly-owned subsidiary of Lockheed Aircraft Corp., known as Lockheed Aircraft Service and located at Burbank, Calif. A branch of LAS, known as Lockheed Aircraft Service-International, is located at New York International Airport. Last official report on the backlog of the service group was over \$19 million.

During the war, activities of the Service Division spread until 75% of the work performed was on planes of other manufacturers. The same trend exists today in both military and commercial

work. While LAS handles millions of dollars worth of overhaul and modification of Lockheed-built fighters and transports, it also handles a proportionately large share of other types. For instance, it is the only organization of this type factory-licensed to handle servicing of the Boeing B-377, Convair Liner and Lockheed Constellation.

Heading this multi-million dollar program is Kenneth Hull, president of Lockheed Aircraft Service and veteran member of the parent company. Marc T. Worst, as vice president-operations, reports to Hull with jurisdiction over both the Burbank and New York bases. As base manager at New York, Vice-President P. M. Wilcox directs east coast activities.

Wealth of Knowledge

Other key men in the organization include Thomas J. Hinman, manager of military sales, Max Helzell, manager of commercial sales and B. A. Forrest, secretary-treasurer of the company. No small part of the company's success can be attributed to careful integration of factory-wise technical men with men of long airline experience, thus providing a wealth of pooled knowledge.

At one time recently LAS had a pool of almost 200 Lockheed F-80's awaiting modification and overhaul, about 100 North American F-51's being demothballed and an undisclosed number of Boeing C-97 Stratofreighters for

servicing and modification. As many as 14 Stratofreighters in various stages of disassembly have been parked on the LAS ramp, which was beginning to resemble a Boeing factory.

Meanwhile, LAS also handles major airline accounts. It converted three of American Airlines' Douglas DC-6's to 70-passenger coach planes, three of Trans World Airlines' Lockheed 049's to 81-passenger coaches and handled conversion of the five short-range, KLM-operated Connies to deluxe interiors for Capital Airlines.

To handle these functions, which do not include engine or propeller overhaul, LAS employs almost 2,000 people at Burbank, occupies about one million square feet of floor space. Principal buildings are three 186 x 200-foot hangars and two 160 x 320-foot hangars. Even so, the company's stock storage has overflowed onto the ramps where a circus-like tent is used to provide coverage.

An indication of the nature of work can be had by looking at the F-80 modification program. These planes are disassembled into their three major sections—forward and aft fuselage and wings. The engines are replaced, new canopies installed, ejection seats provided, provisions made for rocket launching and gun cameras. In all, some 30 modifications are made to the planes.

When completed they are hauled away by truck to San Fernando Airport in Van Nuys, a five- or six-mile trip, by trailer truck because of airport limitations at Burbank. As many as

35 F-80's were handled in a month at the peak of the program. One has to see this production-line handling of major modification work to appreciate the true scale of the operation.

The F-51 Mustangs are ferried to Burbank from San Antonio. A minimum of servicing, just enough to insure a safe ferry flight, is given the planes at San Antonio. On arrival at Burbank they are true "war wearies"—drab paint, bullet holes and every evidence of long storage. The planes are completely stripped of equipment, engines and paint; a crew of 14 men spends full time building up nacelles with newly overhauled engines; instruments and accessories are overhauled; fuselages are cleaned and polished.

S&W Account

Both LAS and LASI share the handling of Seaboard & Western Airlines equipment—an account they take considerable pride in because of its impressive record of utilization and high tonnage in both the Pacific airlift operation and in regular commercial service. During the first quarter of 1951, with LAS handling maintenance, S&W's daily utilization passed the 14-hour mark. With S&W, Lockheed pioneered the fixed price per hour of flight type of maintenance contract which it is still using. LASI handles maintenance on S&W's eight DC-4's on the east coast.

In addition to handling aircraft maintenance and overhaul for various domestic and foreign airlines, LASI also handles component overhaul for Chicago & Southern, LAV, British Overseas Airways Corp., Air France, National Air Lines, Scandinavian Airlines, Pan American and others. As indicated in the chart, no small part of this group's work is with corporate aircraft.

These functions are carried on at New York International Airport, in a hangar shared with KLM Royal Dutch Airlines. Some 600 employees make up the normal crew at LASI. About 200 of these work in the engine, accessory and instrument shops. About 800 of the 12,000 square feet of shop space used for instrument overhaul.

Lockheed's service activities are called on to perform many other functions outside maintenance and overhaul. Until recently, when expanded military operations changed the picture, Lockheed Aircraft Overseas Corp., another branch, ran the entire airport operation at Keflavik, Iceland, except for refueling which was handled by Esso Aviation Service. Until recently, when the Military Air Transport Service took over this function, LASI was operating several flights per week between New York and Keflavik as part of its contract.

Aircraft Instruments and Controls

Radio Communications and Navigation Equipment



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Pratt & Whitney Powered!

U. S. Air Force's Combat Cargo Command in Korea Hits New Marks in Air Support of Ground Troops

FROM the outbreak of the Korean War, United Nations strategists were faced with the tremendous problem of transporting troops and supplies to hastily organized bases thousands of miles from home.

To help meet this emergency, military planners drew on their experience with previous airlifts, and almost overnight established the Combat Cargo Command of the Far East Air Forces. Its mission was to carry troops, evacuate wounded and supply ground forces on a scale never before undertaken.

Men and planes were drawn from Air Force units, the U. S. Marine Corps and the Royal Hellenic Air Force. The aircraft were Curtiss C-46s, Douglas C-47s and C-54s, and Fairchild C-119 Packets.

The world at large has heard of such Combat Cargo Command feats as the paratroop of over 3,900 troops, jeeps, howitzers, guns and supplies which cut enemy troops at Pyongyang . . . the complete supplying for 12 days of 20,000 U. N. forces isolated in the Chosin Reservoir area . . . the airdrop of a

16-ton bridge that saved millions in supplies . . . and the rescue of over 4,000 casualties in the Chosin area.

But as much as these accomplishments stand out, it was the steady day-by-day operations which contributed most heavily. In its first 145 days of existence, for instance, the Combat Cargo Command flew 32,851 sorties, airlifted 130,948 tons of cargo, carried 156,207 military passengers, and evacuated by air 73,151 persons.

What the Combat Cargo Command has been doing in Korea is even more remarkable in the face of the limited time that was available for training crews in specialized duties, the crude fields from which aircraft were forced to operate, and the fact that flying was on a 24-hour a day, all-weather basis.

That these obstacles were overcome so successfully is a tribute to the rugged aircraft used to undertake the job, to the skill of the men who manned them, and to the dependable Pratt & Whitney engines which powered them all.

Pratt & Whitney Aircraft



ONE OF THE FOUR DIVISIONS OF
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**This "PILOT" will
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**He's a
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Technical News Digest

- Special studies into the flow of gas through jet engine compressors will be conducted by the Research Division of New York University's College of Engineering under a contract with The General Electric Company's Aircraft Gas Turbine Department.

- Rearrangement of air traffic control and navigation aids over Europe and in the Mediterranean area, proposed by the technical groups of the International Civil Aviation Organization, would set up reserved air lanes along the principal routes of traffic flow. Realignment of some controlled routes already in existence and creation of others would be required. Reserved route structure would be based on existing rather than projected equipment.

- Northwest Airlines has completed more than a year of testing of a new-type detergent oil, known as TL-1390 and developed by the Texas Company. Results are described as "highly satisfactory." Oil was tested initially in the Pratt & Whitney R-2000 engines of the Douglas DC-4, later in the R-4360's of the Boeing Strotcruiser. Several months will elapse before final reports on the oil, which NWA says is "no doubt superior," will be completed.

- License for the manufacture of molecular bonded bi-metallic pistons using the Al-Fin process has been granted Zollner Machine Works of Fort Wayne, Ind. by the Al-Fin Division of Fairchild Engine and Airplane Corp. License provides that the Aluminum Company of America and Bohn Aluminum and Brass Corp., will use the process in bonding and casting operations in production of piston castings for Zollner.

- One-year course in meteorology will be offered to U. S. Air Force lieutenants now on active duty who wish to enter the weather officer career field. The course, offered at government expense at civilian colleges and universities, is offered to USAF lieutenants with baccalaureate degrees including integral calculus plus one year of college physics.

- A comprehensive technical assistance mission for training Indonesian personnel in development of airways and air navigation facilities will be provided under an expanded program of the International Civil Aviation Organization. ICAO will provide equipment and training aids required. Group will include an aircraft and engine expert, radio operations and maintenance instructors, air traffic control instructors, an airport specialist, aviation economist and maps and charts specialist.

- First version of the radar safety beacon has been received at CAA's Indianapolis Development and Evaluation Center with evaluation scheduled to begin as soon as ground equipment is available. Program is scheduled for 1952 completion.

- Over one million gallons of re-refined oil were saved from used aircraft engine oil of the U. S. Air Force during the past year. Of 1,591,000 gallons sent to contractors for re-refining, 1,115,000 gallons were yielded. The Supply Division of the Air Materiel Command estimated that about 71.9% of used oil can be recovered in this manner. Of every 1,000 gallons of new oil, about 177 gallons ultimately become available a second time through re-refining.

- A slideslip stability augments developed by Northrop Aircraft, Inc., has been flight-tested in a Northrop Scorpion F-89 as a means of solving problems of aerodynamic stability and control related to "dutch roll." The Northrop unit uses a low-threshold accelerometer to measure side force on the aircraft and, by means of electrical servos, deflects the rudder to neutralize the side force without moving the rudder pedals.

- Automatic indication of power failure may be used as equivalent to automatic feathering in determining aircraft performance if a proposal now being circulated by CAB is adopted. CAB is seeking industry comments on the proposal through November 12. Unless automatic feathering is provided, present transport certification tests and resulting maximum allowable take-off weights are based on single-engine performance with the inoperative engine windmilling.



WHY PANTHERS PULL NO PUNCHES

Over the foaming wake of its carrier, one of our Navy's most aggressive fighters, the GRUMMAN PANTHER, comes in low for landing. Since early in the Korean War, PANTHERS have demonstrated two traditional characteristics of Grumman combat planes. The ability to hit hard and the ruggedness to take punishment and return "home."

GRUMMAN AIRCRAFT ENGINEERING CORPORATION, BETHPAGE, LONG ISLAND, NEW YORK

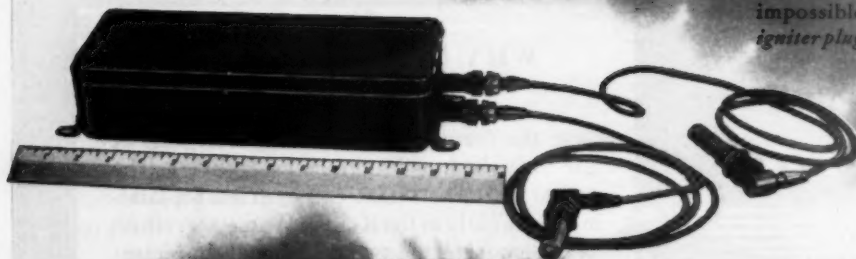
Contractors to the Armed Forces

From Ignition Headquarters

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*Latest and Most
Revolutionary
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IN JET ENGINE IGNITION!



PERFORMANCE DATA

INPUT.....14-30 Volts D.C.
OUTPUT.....1000 Volts D.C. to Igniter Plugs
AMBIENT LEAD TEMPERATURE.....100° F
ALTITUDE.....60,000 Ft. Plus
WEIGHT COMPLETE SYSTEM.....6.5 lbs. Average

Once again the Scintilla Division of Bendix sets the pace in ignition for the industry. No longer must voltages of 15,000 be generated to break down the plug gap. This revolutionary T.L.N. system with its new *shunted surface gap igniter plugs* produces a hotter spark across the bridged gap with only 1000 volts.

Engine starting difficulties due to fuel-wetted plugs or carbon fouling can now be reduced to a degree previously thought impossible due to the *shunted surface gap igniter plugs*.

Other exclusive features include unrestricted length of small diameter, high temperature flexible leads—fewer parts—lighter weight—more concentrated energy in the spark and far greater all-around reliability and durability.

This new T.L.N. ignition system complies with all pertinent A & N Specifications, has been exhaustively flight tested and is now in production for service engines.

Complete detailed information on request.

Bendix

**SCINTILLA MAGNETO DIVISION OF
SIDNEY, NEW YORK**

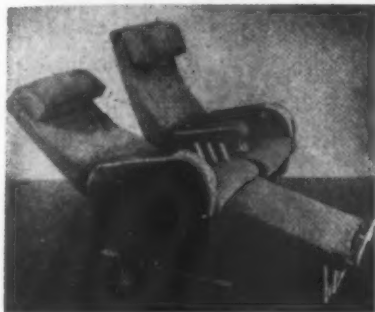
Export Sales: Bendix International Division, 72 Fifth Avenue, New York 11, N. Y.

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Brewer Building, 176 W. Wisconsin Avenue, Milwaukee, Wisconsin • 247 Market Street, San Francisco 4, California



AMERICAN AVIATION

New Products



Passenger Seat

The Aerotherm Corporation has announced a luxury passenger aircraft seat, designated Model 441-2. Designed for use in Pan American World Airways' new DC-6B Clippers and contoured to fit the Douglas DC-4 and DC-6, the Boeing Stratocruiser and the Lockheed Constellation, the new double-passenger seat is described as comfortable for day and night travel.

Requiring less space than conventional berths for overnight flights, the seats can be reclined to any position up to a maximum of 65 degrees. Back also folds forward to facilitate passenger-cargo operations and to simplify handling the seat itself.

Back and seat are cushioned with "Tex-Foam" rubber, the headrest being filled with down. Cradling support for the head is provided through compartmenting the headrest with a soft section in the middle and denser fillings on the sides. Food-tray supports are an integral part of the seat. On Model 120, adjustable legrests and footrests are available.

Structural elements are of lightweight metals, with side panels of molded plastic. Seat withstands 10 G forward, back, and side loads, and 6 G down loads, exceeding requirements of Technical Standard Order TSO-C25. Model 441-2 is supplied according to customer's specifications as to metal finishes, slip cover, and armcap materials.

Address: **The Thermix Corp., Greenwich, Conn.** (project engineers for The Aerotherm Corp.)

Charting Kit

Materials and method for producing statistical and organizational charts and office plans with printed tapes, tabs, and templates which adhere to a rigid Vinylite plastic sheet are available from Chart-Pak, Inc. Grid lines, printed on the plastic board in non-photographic

blue, guide the chart maker in laying down adhesive-backed tapes. For office plans, templates representing office furniture and equipment and working space required for each piece, scaled $\frac{1}{4}$ inch to the foot, are first laid out in the desired arrangement. Then the templates are stripped of their backing and secured to the board. Organizational charts can be laid out in the same way.

Charts and graphs are then made into photostats or into engravings for photo-offset or letterpress reproduction.

Available in kits for various applications or separately, the materials include mounting boards 22 by 32 inches or 12 by 18 inches, protective envelopes of Vinylite plastic sheeting, tape knives, tools for removal of backing from tabs and templates.

Address: **Chart-Pak, Inc., 104 Lincoln Ave., Stamford, Conn.**



Sealed Switch

A hermetically sealed limit switch for aircraft is available from The Exhibit Supply Co. Specific applications for the new switches include indication and control of landing gear movements, flap control, movement and interlocking of bomb bay doors, and turret operations.

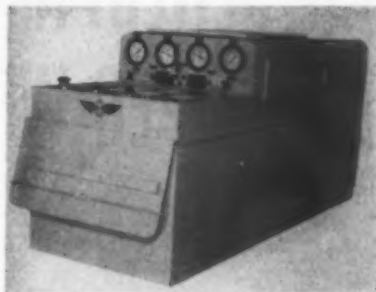
Because of hermetic sealing, the switch, called Electro-Snap, is considered proof against freezing, corrosion, explosions, accumulation of dust on contacts, tampering and misadjustments.

Manufacturer states there is no condensation within the mechanism from humidity and temperature cycling. Accordingly, there is no danger that the switch components will freeze. Equal performance is delivered at sea level or 50,000 feet.

Feature of the new switch is a tipping diaphragm action, eliminating any sliding parts, to prevent jamming from ice formation.

Construction details include double-pole, double-throw switching with nearly simultaneous break. Single-pole, double-throw is optional.

Address: **The Exhibit Supply Co., 4218 West Lake St., Chicago, Ill.**



Lube Servicing

Greer Hydraulics, Inc. is marketing a new lubrication-system service machine designated model OR-100. Machine can be used for the cleaning, flushing, and pre-oiling of jet and reciprocating engines and component parts of the lubrication system removed from storage or stock; the servicing of lubrication systems; and the preheating of oil to facilitate engine starting in sub-zero temperatures. Procedure is reversible, permitting use of the machine to prepare engines and parts for storage.

OR-100 consists of two self-contained systems, each of which is provided with a reservoir, a pump and motor, a filter, and interconnected internal manifolds. Each reservoir is equipped with high-capacity, immersion-type electrical heaters. Unit can be mounted on the bed of a trailer supplied by the customer or may be purchased mounted on wheels.

Address: **Greer Hydraulics, Inc., 454 18th Street, Brooklyn, N. Y.**

Fuel Dehydrator

A device for removing water from aviation gasoline has been announced by Bowser, Inc. Manufacturer states that fuel dehydrated by the new unit gives increased combustion and reduced carbon formation.

The new unit passes fuel through elements made up of wound cellulose cylinders, treated coalescing media, perforated metal, and glass cloth. Device has no moving parts and the dehydrating elements function indefinitely. An automatic ejector is available as an accessory to be used where there is possibility of large volumes of water in the fuel.

Manufacturer reports tests showing that either small quantities or large slugs of water can be removed.

The dehydrator is available in 350- and 600-g.p.m. capacities. Maximum working pressure is 125 p.s.i.

Address: **Bowser, Inc., Fort Wayne, Ind.**

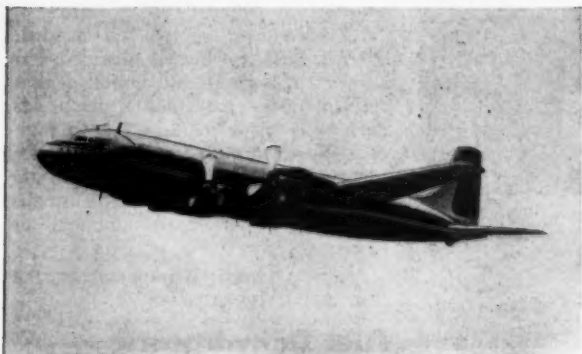
Here's why THE NEWEST AND BIGGEST AIRLINERS ARE BEING EQUIPPED WITH G-E ELECTRICAL SYSTEMS



Lockheed's new model Constellations, and all Super-Connies use General Electric protective systems. G-E provides the fastest possible tripping of overvoltage faults—and freedom from nuisance tripping.



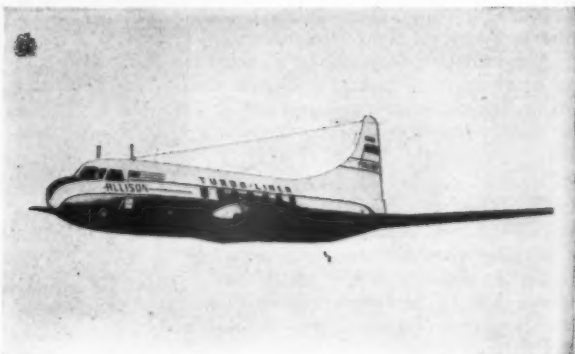
G-E provides the only positive method of isolating a faulty generator without affecting service. That's one reason why all of Pan American's Boeing "Strato" Clippers use G-E systems.



New Douglas DC-6B's being built for Pan American World Airways will be equipped with G-E electrical systems. G-E provides the most complete electrical protective systems ever placed in production for commercial transport-type aircraft.

The list of planes using G-E protective systems is a roll call of today's most popular aircraft. Are your planes listed among them?

One serious fault that damages electrical equipment in just one of your aircraft could cost you more than



The country's first turboprop transport—the Convair-Allison Turboliner—is equipped with a G-E electrical system. G-E systems are tailor-engineered to give the protection you need for ordinary or special applications.

G-E protective systems for your entire fleet. Can you afford *not* to investigate?

For more complete information get the new fact-crammed bulletin GEA-5628. Telephone your General Electric aviation specialist or write General Electric Company, Section 210-16, Schenectady 5, New York.

You can put your confidence in—
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Technical Literature

METAL HOSES: A 16-page catalog, prepared for product designers' use, giving description and specifications of the manufacturer's line of metal hoses and metallic bellows of stainless steel, brass, bronze, and other alloys is available from Chicago Metal Hose Corp., 1330 S. Third Ave., Maywood, Ill.

SENSITIVE MANOMETER: Descriptive literature on a new type of sensitive electronic manometer and flowmeter having no fluids may be obtained by writing Hastings Instrument Co., Inc., Super Highway and Pine Ave., Hampton 10, Va.

DEGREASERS: Manufacturer's line of degreasing equipment, described in a new illustrated booklet, which gives a detailed picture of how the equipment operates, what types of manufacturers use degreasers, and the specific applications to which degreasers can be put, is being circulated by Phillips Manufacturing Co., 3475 West Touhy Avenue, Chicago 45, Ill.

RUBBER COMPOUNDING: A catalog describing plant facilities, including a new rubber compounding mill and various services and products now available, is offered by Automotive Rubber Co., Inc., 8601 Epworth Blvd., Detroit 4, Mich.

LEAKPROOF TUBES: Swagelok Tube Fittings Catalog B-151 describes and illustrates the complete line of leak-proof Swagelok tube fittings which are available in brass, aluminum, steel, stainless steel, and Monel. Dimensional information, cross section drawings, installation recommendations and assembly instructions are included. Available from Crawford Fitting Co., 884 East 140th St., Cleveland 10, O.

FREQUENCY CONVERTERS: A new four-page, two-color bulletin on Tri-Clad induction frequency converters has been announced as available by the General Electric Co., Schenectady 5, N. Y. The booklet, designated GEA-5637, covers three-phase equipment in ratings from 1/4 to 100 kw. It describes the fundamental operation, and construction features of the high-frequency power supply apparatus, and includes application information, modifications, and limitations, and complete tables of ratings and frame sizes.

SPRAYING METHODS: "Sprayways" is name of a 16-page brochure available from the DeVilbiss Co., Toledo, O. Brochure illustrates varieties of ways the manufacturer's spraying equipment can be used.

METAL CUTTING: Data on cast alloy metal-cutting tools is presented in a manual and catalog being distributed by Haynes Stellite Co., a division of Union Carbide and Carbon Corp., 30 East 42nd St., New York 17, N. Y. Booklet describes four different grades of cast-cutting tool alloys: Haynes Stellite alloys Nos. 19 and 3, Star J-Metal, and 8M2 alloy, giving physical, mechanical, and chemical properties of these alloys to help in selecting right tool alloy for various cutting operations. Provided are tables giving proper cutting angles, speeds, feeds, and depths of cut for turning, boring, and milling.

Extra Section

By William D. Perreault



IN a talk before the Anglo-American Aeronautical Conference at Brighton, England recently, Jerome Lederer, president of the Flight Safety Foundation and Director of the Guggenheim Aviation Safety Center noted that some aircraft engineers have a "callous attitude toward safety . . . often influenced and supported by the pressure of economics." Terming Lederer's statement "patently untrue" and "completely unsupportable by facts," Admiral DeWitt C. Ramsey, president of the Aircraft Industries Association took issue with the comments.

We found it interesting to go back to the official AIA comments and recommendations made to CAB during last year's airworthiness review: "The particular level of safety that can be provided a given community is determined by the type of operation that is found economically feasible. Level-of-safety, therefore, is not a uniform standard but rather a balance between the tolerable passenger risk and the economic feasibility of a given type of operation possessing that risk."

Our congratulations to John Scott Welton and Curtis N. Cooper



John Scott Welton

of Braniff International Airways who were selected by Braniff's maintenance shops committee for a joint "Man of the Year" award. Welton and Cooper developed a cure for faulty aluminum oil sump pumps in the Pratt & Whitney R-2000 engines which has cut maintenance difficulties and improved overall operation. Braniff's award: All-expense two-week air trips for both men



Curtis N. Cooper

and their wives to Rio de Janeiro, Brazil and Buenos Aires, Argentina plus regular pay for the period for individual totals in excess of \$4,500. And to you, Braniff—orchids.

If you have legal or technical problems in the Washington area, we can recommend a good man to see. He's M. B. "Yank" Spaulding, until now in the engineering division of the Air Transport Association. "Yank" is an MIT graduate, has had extensive experience in responsible positions in aircraft manufacturing, airlines and government and is a qualified lawyer. He's hanging out his shingle at Room 800, 726 Jackson Place, N.W., Washington, D. C. His combined legal and technical background should prove useful to many aviation firms desiring Washington representation.

United Air Lines, according to Norman Davis of UAL's engineering department, overhauls about 20,000 spark plugs a month. With UAL's giant-sized operation this would appear to be a big order by industry standards. This figure emphasized the plug overhaul operation carried on by Jim Hill at Kelly Air Force Base where they strive to overhaul 20,000 per day on an eight hour shift. Hill's plug overhaul is completely automatic, using Vapor Blast Manufacturing Company's liquid honing method of cleaning. The fully automatic chain conveyor type unit delivers one plug per second off the line with about 5% rejection rate requiring reprocessing.

Control tower operators at Los Angeles have noticed a difference between the "blip" formed on the radar screen by a helicopter and that formed by a regular aircraft. This enables them to readily recognize the helicopter when it enters the control area. On occasion the tower controllers have been able to direct a helicopter to a predetermined point on the airport by tracking its progress in this manner.

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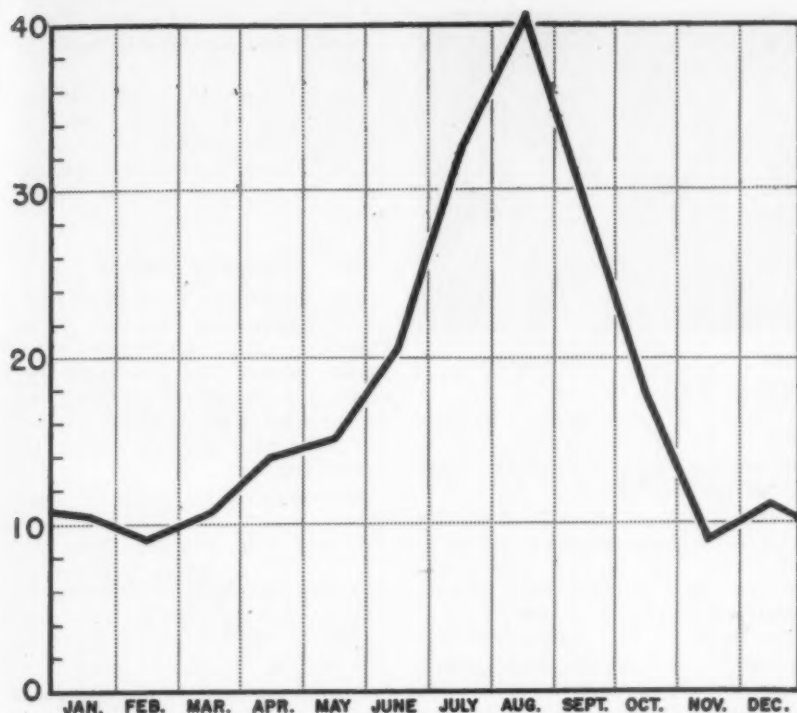


CHART SHOWS (in thousands of passengers) Aer Lingus' peak and valley.

How Aer Lingus Turned Loss to Profit

Smart scheduling, incentive fares, help Irish Air Lines overcome big seasonal peak.

By WAYNE W. PARRISH

HERE'S the story of an airline with a Problem. Every airline has problems but Aer Lingus, Irish Air Lines, has one that can be spelled with capital letters.

It has the sharpest seasonal traffic peak, probably, of any airline in the world. Its traffic in August in 1950, for example, was 262% greater than its lowest month, February.

All airlines have seasonal peaks and valleys on their traffic charts. But in the case of Aer Lingus the "season" is principally one month—August.

Peak Remains

In terms of scheduling airplanes, of sales promotion, of incentive fares and other methods, Aer Lingus has tried just about everything, but so far it hasn't solved the problem of flattening the sharp August peak. But it has made progress—and the story of this progress makes Aer Lingus one of the most interesting airlines in the world.

Before World War II, Aer Lingus was a small feederline linking Dublin with Bristol in southwest England. In

1940 it purchased DC-3's and a service to London was opened. Today the company is 40% owned by the two British airlines, BOAC and BEA, and 60% by the Irish government. Aer Lingus has a monopoly of all cross-channel traffic.

For several years after the war Aer Lingus went through some painful times. It purchased Constellations for a trans-Atlantic service, and then a change in government caused this route to be abandoned before it was opened. In 1947 it bought some Vickers Viking transports, but these were subsequently sold. The Constellations were sold to BOAC, and Aer Lingus then retrenched to a DC-3 operation. It now has 14 of these planes, each with 28 seats. It operates as many as 16 services a day to London in peak season, and has a number of other routes to islands and other parts of England, and to the Continent.

In the fiscal year 1947-48, Aer Lingus lost about \$2,500,000, which is a lot of money for a small airline. But for the latest fiscal year, 1950-51, the company showed a profit of \$40,000. This is a strong recovery, especially considering

the fact that Aer Lingus never got any mail pay to amount to anything until 1951.

How the Irish pulled themselves out of what seemed to be a hopeless deficit situation can be described simply as the result of close examination of problems and markets. The management stopped dreaming of super-expansion and got practical. Today the company is in a sound position financially, even though it has seasonal traffic fluctuations sufficient to stump the most astute airline economist.

In essence, Aer Lingus pulled itself out of a financial slump by two methods:

1. **Smart scheduling.** Instead of scheduling a lot of airplanes every day, it geared schedules to lower traffic demands and met peak demands with extra sections. There were fewer empty seats, but traffic demands were largely met.

2. **Various kinds of incentive fares.** Cheaper-fare night planes were added and lower fares offered during the months when traffic demand was light. Low mid-week fares were offered even during the "good" season to level off weekly peaks.

Aer Lingus has a monopoly of air traffic between Ireland and England. But it proudly points to the fact that it has the lowest fares in Europe.

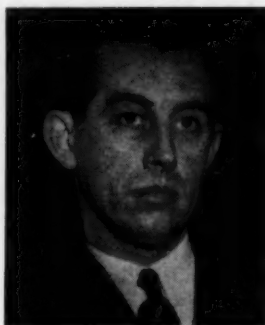
The chief reason: boat traffic across the Irish Channel. The day and night boats to Dublin charge fares just half of the fares charged by boats plying between England and France, and substantially below air fares.

The first move by Aer Lingus to get its house in order was to introduce "glove" scheduling—matching as far as possible the timetable to the exact contours of the traffic demand by varying the number of flights scheduled for each day of the week in each month, "just as a glove fits a person's hand."

Extra Sections

This system worked pretty well, but the line found that it had to add "duplicate flights," or extra sections, during the peak traffic season. So a minimum number of flights were actually scheduled in the timetables, with extra sections operated whenever there was a demand. Aer Lingus soon found its profits going up and cost keeping down. In one month when the average passenger load factors of other companies using Northolt Airport in London was only 50%, Aer Lingus showed a 70% load factor.

Now after three years of "glove" scheduling and schedules control, the Aer Lingus summer timetable involves five monthly changes of frequencies on most routes and in some cases a different number of flights on nearly every day



Dempsey



Stuart-Shaw



Kelly-Rogers

of the week. But duplicate or extra-section flights are operated frequently as demand warrants.

The second move to achieve a profit status came with the introduction of incentive fares and Aer Lingus was one of the very first airlines in the world to offer low fares for normally low traffic periods.

The biggest problem was winter traffic valleys. For the entire system the peak month of August is about four and one-half times as heavy as the travel three months later. And on one major route the peak traffic is twenty times that of the valley winter weeks.

So, in the winter of 1948, Aer Lingus introduced special excursion fares. These were so successful that the low winter fares have remained. In fact, they are now down to a little more than 3c a mile, lowest in Europe and comparable to the lowest in the U. S. — if indeed they aren't actually below.

But winter was only one problem. Aer Lingus was faced year-round with heavy week-end traffic. Unlike in the U. S., where Monday, Tuesday and Wednesday were the low period which brought on the "family plan," the low days with Aer Lingus were Tuesday, Wednesday and Thursday. So the airline has been leveling out its weekly loads by pulling up the mid-week business with incentive fares.

Off-Hours Flights

All this left one low valley in the traffic scheme. This was the period of day between 9 p.m. and 9 a.m. and the company experimented with an 8 a.m. "Early Bird" flight with lower fares. This idea caught on but was withdrawn last year and replaced with "Starflights" operating late in the evening. Today, these night flights are increasingly popular and are doing much to increase utilization of the fleet. The fare is about 3½c per mile, lowest international fare in the airline business.

Since all of the Aer Lingus routes are short (London is just 278 miles from Dublin) except the Paris and Amsterdam routes, all of the 14 DC-3's were

converted for 28 seats. Five all-cargo flights are operated weekly, two to Manchester and three to London. Cargo traffic has been trebled.

It was not until March 12 of this year that Aer Lingus obtained a contract to carry the mail between Ireland and Britain. Mail revenue which hitherto formed only one-half of one percent of the company's total income will now provide a more nearly normal proportion. For the fiscal year 1950-51 mail revenue amounted to 1.14% of total revenue but for 1951-52 it should amount to about 4.86%. Average mail load outbound from Dublin is averaging 4,200 lbs. nightly and inbound about 3,400 lbs., but there is no Saturday service.

Experienced Officers

This writer visited Aer Lingus headquarters in Dublin recently and was well impressed with what he saw. J. F. Dempsey, general manager, is a very able young man who has been active in International Air Transport Association ever since its formation in Cuba in 1945. Technical manager is a name famous in world aviation, Capt. J. C. Kelly-Rogers, who flew for BOAC for many years and who made air history flying Winston Churchill during the war.

Chief engineer is Paget McCormick who knows DC-3's as intimately as anyone in the business. On the commercial side is Max Stuart-Shaw, formerly of

BOAC, whose wide experience in international traffic has come in handy for Dublin.

Garret Fitzgerald, a young man who has the title of assistant commercial planning superintendent, is a "comer" in the economics field and provided much of the basic material for this article.

Orderly Shops

Sales offices and main headquarters of Aer Lingus are in downtown Dublin. Operations and maintenance are at Dublin Airport. The maintenance and overhaul shops are well equipped, clean and orderly. Flight operations are handled well and the in-flight cabin service is very good.

Few airlines in the world have made greater strides toward economic self-sufficiency than has Aer Lingus since the war. To an outsider making a visit of a few days, it might seem that perhaps the total personnel could be further reduced to effect more economies, but this may be an unjust comment.

Aer Lingus plans to order four, and perhaps five, turboprop 50-passenger Vickers Viscount transports for delivery in 1954 and 1955. It wishes now that it had acquired several DC-4's for the London-Dublin service several years ago but hopes the Viscounts will do the job in due course.

Apart from routes to London, Birmingham, Manchester, Liverpool and Glasgow and other points in the British Isles, Aer Lingus operates to both Paris and Amsterdam on the Continent. Later on it will extend to other points.

In the calendar year 1950 Aer Lingus carried 221,150 passengers, about 15,000 more than Colonial Airlines in the U. S. In the peak month of August it carried 40,388. In the lowest month, February, it carried 9,115. But even July and September, with 32,785 and 29,428 respectively, show how sharply the seasonal factor operates with the airline. The seasonality factor, i.e., the relationship between peak and valley month, is 4.43 and it is doubtful that there is any such airline to be found elsewhere.

Planes Named for Saints

When it comes to giving names to its fleet of airplanes, Aer Lingus shuns the traditional "City of Dublin" and "Star of Egypt" type of designation. Each Aer Lingus DC-3 is named for a saint.

Here is how the fleet lines up:

St. Patrick	St. Aidan	St. Laurence O'Toole
St. Colmcille	St. Albert	St. Brendon
St. Kieran	St. Declan	St. Edna
St. Malachy	St. Fintan	St. Kevin
St. Brigid	St. Colman	

Some Irish wag wanted the airline to use the slogan "Fly with the Saints" but the more stable officers of the airline rejected that one fast.

One Name Alone

Links the
Hearts

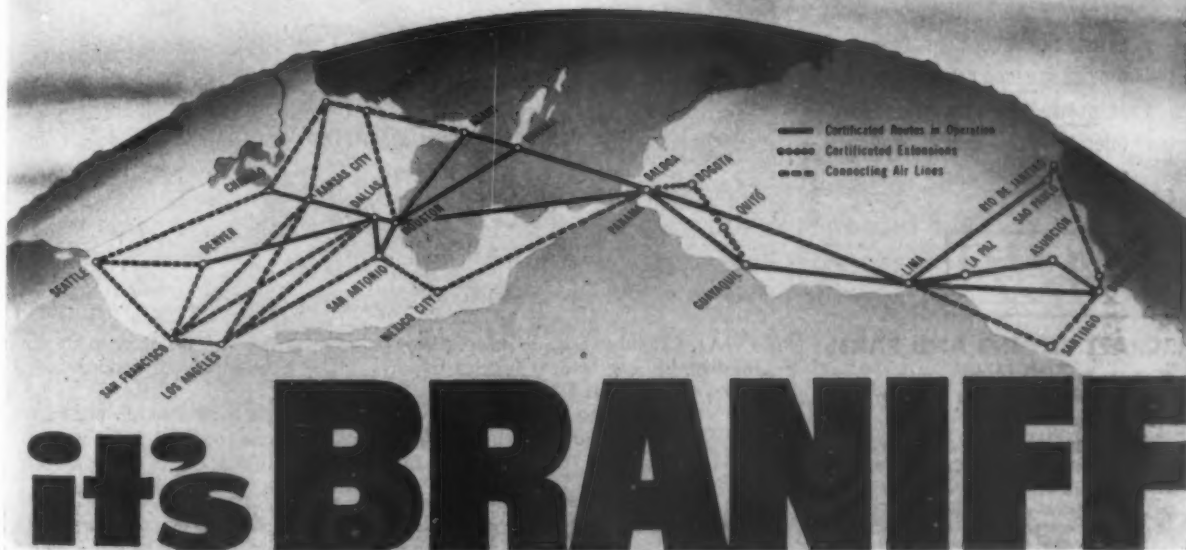
of two mighty
continents

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English, Spanish and Portuguese, there is one
name that needs no translation . . .

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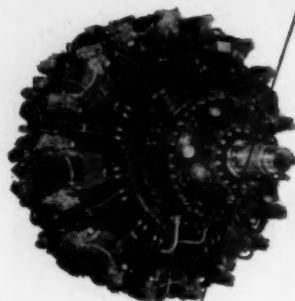
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United States to and into the
heart of Latin America . . .



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Airline Commentary

By Eric Bramley



MOST airlines get tagged with nicknames, some flattering and some unflattering. Very often the origin of these nicknames gets lost. Take Aer Lingus (Irish Air Lines), for example. It's often referred to as Aer Fungus. Now we're told that the origin goes back to the time when Aer Lingus began transporting huge quantities of mushrooms to England, and to save some of you knotheads the trouble of looking up fungus in a dictionary, it means "any group of thallophytic plants comprising the molds, mildews, rusts, smuts, mushrooms, etc." Incidentally, Aer Lingus is a Gaelic expression meaning "air fleet."

Now there are air ties—the kind of ties you wear. International Air Transport Association has blossomed out with an official tie, a conservative lavender sprinkled with the official IATA insignia, and all delegates to the recent annual assembly at London wore them. Easy way to identify an IATA member.

Airline overnight bags turn up in some strange places, and the accompanying picture shows what may be one of the strangest. The peasant shown carrying the TWA bag was spotted in a small village named Villaneuva de la Vera, province of Extremadura, in the western part of Spain, where airplanes are only infrequently seen as they fly overhead.

TWA's Madrid office states: "The peasant, an old shepherd, told the photographer that he hopes to go sometime in the future to the United States via 'TOOAH'



(TWA), like other Basque shepherders who lately went under contract. He is very proud of his bag which he uses to carry his weekly supply of foodstuff to the country to look after his cattle.

"The bag was found by him on a highway—probably had dropped from a car. When he opened it, he found that it contained some food."

News item contributed by Dick Wright, American Airlines' sales manager in Louisville: Riverside Airport, near Louisville, has been sold to the Illinois Central Railroad for \$75,000. Railroad wants to put a spur line through the tract to a new gas and electric plant. Anyway, that's a new twist—a railroad buys an airport.

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All-Cargo Operations, Second Quarter 1950-51 Compared

AIRLINES	TRAFFIC						REVENUES & EXPENSES						
	FREIGHT TON-MILES	AVAILABLE TOWNSHIPS	% AVAILABLE TOWNSHIPS	REVENUE PLANE-MILES	SCHEDULED MILES	% SCHEDULED MILES COMPLETED	TOTAL OPERATING REVENUES	FREIGHT REVENUES	NON-SCHEDULED TRANSPORT REV.	TOTAL OPERATING EXPENSES	AIRCRAFT OPERATING EXPENSES	GROUND & PROPERTY EXPENSES	NET OPERATING INCOME
Airnews 1950	116,073 184,009	293,116 302,761	38.93 60.77	85,434 89,810	85,176 90,332	100.00 99.42	\$ 61,855 65,696	\$ 53,634 64,966	\$ 140 ...	\$ 50,185 44,194	\$ 42,581 36,346	\$ 7,604 7,849	\$ 11,670 21,502
Fly. Tiger 1950	6,623,429 3,974,706	8,119,024 5,883,382	81.58 67.55	1,247,463 768,847	1,653,767 884,799	70.08 80.29	1,672,507 885,251	1,022,342 577,652	40,196 50,240	882,993 778,318	565,065 423,441	317,929 354,877	789,514 106,933
Riddle 1950	1,861,798 Carrier did not begin	2,483,079 operations until March 25, 1951.	74.98	473,380	427,154	100.00	291,547	270,584	...	325,566	195,698	129,868	-34,019
Slick 1950	16,065,401 8,177,795	19,024,072 10,944,405	84.45 74.71	3,061,178 1,902,578	2,220,010 2,133,591	84.46 80.07	2,324,190 1,350,218	1,451,016 1,167,982	707,468 45,487	2,052,616 1,281,358	1,140,127 660,971	912,488 620,388	271,574 68,899
US Airlines 1950	822,571 872,607	1,307,257 1,666,202	62.92 52.37	243,770 322,716	287,540 345,185	78.57 94.53	105,656 122,916	88,995 87,863	15,819 34,455	220,823 227,166	156,652 136,288	64,171 90,878	-115,168 -104,250
TOTALS 1950	25,489,272 13,209,117	31,231,548 18,796,750	81.61 70.27	5,111,225 3,083,951	4,673,647 3,453,907	80.71 82.13	4,455,755 2,424,081	2,886,571 1,898,463	763,623 130,182	3,532,183 2,331,036	2,100,123 1,257,046	1,432,060 1,073,992	923,571 93,044

* US Airlines 1951 figures are through May only. Later figures are not yet available.

All-Cargo Lines' Net Shows Big Increase

NET operating income of the four domestic scheduled all-cargo lines and Riddle Aviation Company, certificated overseas all-cargo carrier, totaled \$923,571 for the second quarter of 1951, or \$830,527 more than was received in

the same three-month period of 1950, according to reports filed with the Civil Aeronautics Board. Revenues of the group totaled \$4,455,755 in the 1951 April-June period and expenses were \$3,532,183. This compares with a \$93,-

044 operating net on revenues of \$2,424,081 and expenses of \$2,331,036 in the same 1950 period.

Slick Airways operating revenues totaled \$2,324,190 of which \$1,451,016 represented freight revenue and expenses amounted to \$2,052,616 thereby holding the operating net down to \$271,574.

Freight ton-miles flown by the all-cargo carriers in the 1951 second quarter totaled 25,489,272, up 92.9% over the same three months of 1950. Slick Airways by far flew the greatest number of freight ton-miles.



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CAB Calendar

- Nov. 12—(Docket 4805 et al.) Hearing in Alaska Airlines Route Amendment Cases. Anchorage, Alaska.
- Nov. 13—(Docket 4518) Oral argument before the Board in Delta Air Lines All-Cargo Route Case. 10 a.m., Room 5042, Commerce Building, Washington, D. C.
- Nov. 19—(Docket 4850 et al.) Hearing in New York/Chicago Cartage Agreement Investigation. 10 a.m., Room 5842, Commerce Building, Washington D. C. Examiner Barron Fredricks. Postponed from October 22.
- Nov. 27—(Docket 4083 et al.) Hearing in Central Airlines Certificate Renewal Case. Tentative. Place and hour to be announced. Examiner Herbert K. Bryan.
- Dec. 10—(Docket 5055 et al.) Hearing in E. W. Wiggins Certificate Renewal Case. Tentative. Place and hour to be announced. Examiner R. Vernon Radcliffe.
- Dec. 26—(Docket 4902) Hearing in investigation of Consolidated Flower Shipments, Inc.—Bay Area. Tentative. Place and hour to be announced. Examiner Richard A. Walsh. Postponed from October 26.

Airline People

ADMINISTRATIVE

Alvin P. Adams elected a vice president of Pan American World Airways. He formerly headed the aviation management consulting firm bearing his name and prior to that was president of Western Air Express Corp., now Western Air Lines.

Alexander G. Hardy appointed executive representative for National Airlines with offices in Washington, D. C.

Stanley E. True appointed ass't manager of Pan American's Atlantic Division. He was formerly director of PAA's western Atlantic region.

Paul West, Jr., is now All-American Airways' public relations director having succeeded Robert Rowley, resigned.

OPERATIONS-MAINTENANCE

Charles E. Griffith transferred by Continental Air Lines from Raton, N. M.,



Runyon

Griffith

to Lawton, Okla., as station manager. M. B. Runyon replaces Griffith as station manager at Raton.

Irving Sommermeyer named gen'l mgr. of flight operation for United Air Lines.

Ernest Leppert is station manager at Baltimore for Slick Airways.

William Kushner is now gen'l foreman of maintenance for TWA at Washington, D. C.

TRAFFIC & SALES

Joe Howell, ass't dir. of personnel for Braniff Airways, named d.s.m. at Miami. Bryan Davis named d.s.m. at Colorado Springs. L. J. Davis is d.s.m. at Denver and David H. Knight d.s.m. at Wichita Falls.

George L. Krause, Charles S. Plumb and W. Evan Wheeler were recently shifted as Capital Airlines' d.s.m.'s. Krause moved to Rochester, N. Y., from Harrisburg, Pa. Plumb went to Charleston, W. Va., from Charlotte, N. C.; and Wheeler to Charlotte from Bristol.

Archie Yawn and Marvin Nolan named traffic & sales reps. for Southern Airways. Nolan has been stationed in Memphis and Yawn will work out of Atlanta.

Hunt Laffey appointed d.s.m. at Baltimore for Slick Airways.

Carlo G. Bellero named manager of TWA's New Orleans sales district.

NOVEMBER 12, 1951



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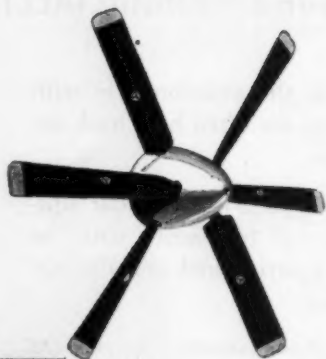
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*dual-rotating propeller converts power of
the T40 into maximum thrust*

Aeroproducts efficiently harness the tremendous power of the Allison T40 engine in the U. S. Navy's A2D Skysark. The result? Flashing, near-sonic speed *plus* range, climb and performance possible to date *only* with this great turbo-prop power and Aeroproduct combination.



AEROPRODUCTS DIVISION
GENERAL MOTORS CORPORATION
DAYTON, OHIO

Years of research went into this amazing engine and propeller combination. Yes, years of research by some of the finest aeronautical engineers in the country—the men at Aeroproducts and Allison in cooperation with the Navy, which provided our Navy with a new and vastly more destructive weapon.

As a result, Aeroproducts is now preparing to deliver on the first production order existing for Turbine propellers.

Aeroproducts engineers are available for consultation if you have any propeller requirements in the subsonic, transonic, or supersonic range. Aeroproducts—backed by the full facilities of General Motors—will be glad to serve you.

*Building for today
Designing for tomorrow*



Aeroproducts

Wiggins Airways, New England's "Community Airline," Uses Esso Aviation Products Exclusively!

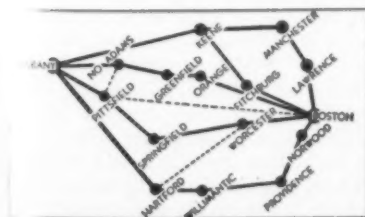


WITH headquarters at East Boston's new Logan International Airport, Wiggins Airways provides fast and dependable mail, passenger, and cargo service to inland communities which two years ago had no scheduled flight service of any kind.

Shown above, on the busy Logan Airport apron, are planes in for servicing. Esso Aviation Fuels and Lubricants are used exclusively by Wiggins both for its own planes and for the planes of transient flyers. Like many other top-flight airlines, Wiggins is using Esso Aviation Products to help maintain dependable, scheduled service. **ESSO AVIATION PRODUCTS**—backed by constant research in America's largest petroleum laboratory—are famous for high quality that helps maintain highest operating efficiency. Airlines that keep 'em flying right on schedule, busy executive flyers, and private flyers know that they can depend on the products that carry the famous Esso Winged Oval trademark.



WIGGINS AIRWAYS, spacious, modern lounge facilities shown above are located in the new Administration Building at Logan Airport. In addition to complete plane servicing facilities, Wiggins provides passengers and flyers with the most up-to-date travel conveniences.



Serving more than a dozen New England towns and cities from Boston to Albany, Wiggins Airways is known as "The Community Airline."



AVIATION PRODUCTS

2015 IN: Maine, N. H., Vt., N. J., E. L., Conn., N. Y., N. C., Penn., Del., Md., D. C., Va., W. Va., Ky., N. C., S. C., Ga., Fla., Ala., Miss., Tenn., Ark., La., Texas.

How Federal Aid is Divided

State	Fiscal 1952			Fiscal 1951		
	No. of Projects	Federal Funds	Total Funds	No. of Projects	Federal Funds	Total Funds
Alabama	5	\$ 343,040	\$ 672,747	3	\$ 87,925	\$ 186,225
Arizona	6	319,886	524,662	7	1,020,345	1,677,370
Arkansas	6	167,734	335,468	2	58,250	146,500
California	15	1,048,525	1,936,692	14	2,112,833	4,024,962
Colorado	8	288,100	520,983	2	595,170	1,118,400
Connecticut	1	98,000	196,000	2	470,000	940,000
Delaware	1	10,000	20,000	1	50,000	100,000
Florida	6	682,964	1,319,928	5	630,883	1,601,766
Georgia	7	230,019	460,038	3	566,000	1,252,000
Idaho	13	195,268	333,872	1	12,512	22,500
Illinois	2	460,000	920,000	10	1,260,000	2,920,000
Indiana	3	212,000	406,000	4	320,000	610,000
Iowa	7	339,000	670,000	3	130,000	248,000
Kansas	8	284,614	569,228	3	289,500	579,000
Kentucky	5	185,500	343,000	6	230,000	474,000
Louisiana	2	190,150	380,300	2	652,850	1,518,200
Maine	4	202,000	404,000	6	82,600	165,200
Maryland	1	115,000	230,000	2	200,000	700,000
Massachusetts	5	528,250	1,056,500	3	1,100,000	2,200,000
Michigan	3	530,000	1,020,000	9	851,650	1,657,300
Minnesota	8	366,000	732,000	10	549,300	1,073,600
Mississippi	4	142,882	285,764	.....	.....	.....
Missouri	3	407,500	815,000	3	1,389,078	2,702,406
Montana	10	147,053	246,700	2	43,201	82,197
Nebraska	6	114,000	228,000	3	180,000	400,000
Nevada	2	22,500	36,000	4	63,125	104,000
New Hampshire	1	41,000	82,000	3	122,500	210,000
New Jersey	2	810,000	1,570,000	4	590,000	1,180,000
New Mexico	4	214,142	363,000	2	87,151	140,512
New York	4	800,000	1,600,000	5	2,295,000	4,560,000
North Carolina	3	247,365	494,730	4	158,345	330,680
North Dakota	6	122,900	233,000	8	77,600	147,500
Ohio	4	574,000	1,102,000	3	500,000	1,750,000
Oklahoma	1	210,365	409,430	4	413,000	822,145
Oregon	8	342,352	591,568	.....	.....	.....
Pennsylvania	2	400,000	800,000	7	1,840,000	3,681,670
Rhode Island	1	50,000	100,000	1	150,000	300,000
South Carolina	4	292,272	568,811	.....	.....	.....
South Dakota	4	50,213	95,200	1	11,680	22,000
Tennessee	6	199,602	399,204	3	913,000	1,826,000
Texas	8	1,023,070	2,019,470	8	2,200,057	4,485,114
Utah	1	6,649	10,878	4	270,355	443,235
Vermont	1	10,000	20,000	2	60,000	120,000
Virginia	2	170,000	340,000	6	260,000	565,000
Washington	5	267,950	517,700	1	340,000	843,846
West Virginia	2	200,000	400,000	3	405,000	810,000
Wisconsin	3	335,000	670,000	1	500,000	1,000,000
Wyoming	4	33,442	58,200	.....	.....	.....
Hawaii	2	300,000	522,000	3	150,000	215,625
Puerto Rico	1	470,000	915,000	1	500,000	1,000,000
Virgin Islands	2	30,000	40,000	2	50,000	66,665
Alaska	4	200,000	266,666	.....	.....	.....
Totals	226	\$15,030,607	\$28,851,739	186	\$24,838,910	\$51,923,618

Terminal Funds Cut in CAA '52 Program

Appropriation leaves little for buildings; small fields also suffer as bulk goes for paving and lighting.

ADMINISTRATION buildings, as expected, are the chief victims of Congress' slash in CAA's Federal Airport Program for fiscal 1952.

The airport program for the year, released this month, lists a total of 226 airport construction or development projects, of which only 31 entail construction of new terminal buildings or enlargement of existing ones.

Funds allotted for terminal projects total only about \$1,300,000 out of a total Federal expenditure of \$15,030,607. Bulk of the appropriation will go for paving and lighting projects.

Based on national defense requirements, the program involves a total expenditure of \$28,851,739, with local or state project sponsors putting up \$13,821,132 in matching funds to supplement the Federal-aid grants. This compares with a fiscal 1951 total expenditure of \$51,923,618, of which \$24,838,910 was in Federal-aid grants and \$26,184,708 in sponsors' funds.

CAA's Office of Airports originally had set up a tentative program calling for a total expenditure of about \$38,000,000 and Federal expenditures of about \$21,000,000 for this fiscal year, but when

Congress cut the appropriation for airport work down to \$15,000,000 the program had to be scaled down correspondingly.

Small Buildings Delayed

Major deletions and excisions fell upon proposed small new airports and proposed new terminal buildings, CAA feeling that such projects could wait out the emergency period better than could runway and taxiway work, lighting installations, and apron paving.

The total program includes \$27,108,073 for construction in the continental United States and \$1,743,666 for projects in Alaska, Hawaii, Puerto Rico and the Virgin Islands.

Of the 226 projects in the program, seven are Intercontinental Express airports, 10 are Intercontinental airports, 19 are Continental, 30 are Express, 56 are Trunk, 52 are Feeder, 25 are Secondary, and 26 are Personal.

According to CAA, as of June 30, 1951, the end of the fifth year of the Federal-aid Airport Program, a total of \$166,537,603 in Federal funds had been programmed, of which \$162,194,067 had been put under contract. Funds had been granted to 1,952 projects, of which 1,295 had been completed, 410 were under construction, and 247 were in the pre-construction stages.

Airport Settles Patent Rights Test Case

A proposed court test of the validity of the Welsbach-Bartow patents on high intensity runway lighting systems has been terminated with the decision of the Forsyth County (N.C.) Airport Commission to pay royalty fees demanded in a patent infringement suit pertaining to the runway lighting installation at Smith Reynolds Airport, Winston-Salem, N. C.

The Commission, in announcing pre-trial settlement of the suit, expressed regret that it had been unable to finance a prolonged court test of the lighting patents and had been unable to enlist adequate outside support for such litigation. Royalty fees in the amount of \$2,600 covering a lighting system installed at the Winston-Salem airport in late 1949 were involved in the suit.

The Bartow patents, acquired by the Welsbach Corp. early in 1949, purportedly cover all high intensity (10,000 candlepower or more without color correction) lighting systems for airport runways. Welsbach initially asked a royalty fee of 80c a running foot for all lighting installations covered by the patents, and subsequently reduced this to 26c a foot after CAA had balked at Federal participation in lighting projects subject to the royalty payments.

AF Gives OK to Repairs On Jets at Field Bases

The U. S. Air Force's policy of permitting minor repairs to turbine engines by maintenance men in the field is beginning to pay off, and plans are now under way to extend the program throughout the USAF as soon as practical. Air Force officials estimate a saving of about \$425,000 in maintenance costs during the past four months at Neubiberg Air Base, in Bavaria, Germany, where the program has been in full swing.

Previously, the USAF did not permit field organizations to make repairs to the jet engines. Troubles which in a piston engine would have been repaired on the spot, have been considered reason enough to ship jet engines back to the overhaul shops for repair and retesting. This necessitated keeping the engines out of service as long as ten months for minor repairs and required large numbers of spare engines at each base.

Current program makes it possible for mechanics to make minor repairs on that part of the engine which becomes hot during sustained flight operation, i.e., tail cone, shrouds, etc., and to replace component parts at the field level. USAF has been setting up engine test cells at the operations bases to facilitate checking the engines after repairs.

Miami H-I Lighting To Cost \$213,700

Contract has been let for a \$213,700 runway and taxiway lighting project at Miami International Airport, with installation due to be completed by July, 1952. Program calls for high intensity lighting to be installed on the new 9,400 foot runway and the 8,400 foot runway previously extended.

Both runways are east-west and make up a dual system, with ILS being moved to the right hand east runway. Line Material Company of Milwaukee will supply 185 high intensity runway lights and 760 taxiway lights, which will be installed by J. R. Hime Electric Co. of Palm Beach.

Airport People

Clark Larson has succeeded Gerald Beyer as manager of Sheldon (Ia.) Municipal Airport. Beyer has joined United Air Lines as a copilot.

William Latta has been hired as manager of Hastings (Nebr.) Municipal Airport.

Vern Weber is the new airport manager at Denison, Iowa.

Airport News Digest

Liquor License: The Broome County (N. Y.) Board of Supervisors has just had an experience which undoubtedly will cause it to be extremely cautious in the wording of airport lease agreements in the future. The lease it signed with the Union News Co. covered the sale of food and "refreshments" in the dining area of the terminal building at the new Broome County Airport.

The true meaning of the word "refreshments" apparently didn't dawn on the county fathers until Union News applied for a license for an airport cocktail lounge. But then . . . The WCTU staged a protest parade; resolutions were adopted by church groups; sermons were preached; letters-to-the-editor columns of the local newspapers bulged with sizzling comment. And all to no avail. After two days of public hearings and three weeks of deliberations, the State Liquor Board finally granted the license. The county will get 7.5% of the gross receipts under the concession agreement.

ADMINISTRATION BUILDINGS

- Ground has been broken for a new \$2,000,000 terminal building at Houston Municipal Airport.
- New administration building at the Mankato, Minn., Municipal Airport is now in use.
- Temporary addition to present terminal at Cleveland Hopkins Airport is being erected on field side of the building by American Airlines and Eastern Air Lines to house their ticketing, baggage handling and passenger waiting facilities until the proposed new administration building is erected. The airlines are paying for the addition.
- Enlargement of the lobby of the terminal at Kansas City's Fairfax Airport has been completed.

ENJOY A WINTER VACATION in the WEST INDIES



Follow the sun to the carefree Caribbean! Bask in the colorful beauty of sun-bathed beaches, enjoy the enchanting sights and romantic gaiety of HAVANA and JAMAICA. C&S offers you a choice of low round-trip excursion fares or bargain all-expense cruises priced to fit every budget. Plan your winter vacation now, with C&S!

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CHICAGO & SOUTHERN AIR LINES

First in

SAFETY

Getting urgently needed equipment and supplies to troops in difficult terrain has always been a decisive factor in warfare. Stanley Switlik and other pioneer parachute manufacturers reasoned that the materials could be dropped with properly designed parachutes. Then began the experiments with cloth and design from which grew today's cargo chutes. Thanks to this research and development, it is now possible to safely drop delicate equipment, medical supplies, food and other materials.

Another *first* through research for greater safety.



SWITLIK

PARACHUTE COMPANY, INC.

LALOR AND HANCOCK STREETS, TRENTON, NEW JERSEY, U. S. A.

The Washington View

By Vera Foster



CONGRESS has adjourned, leaving quite a bit of aviation legislation scheduled for the second session to begin January 8, 1952. The Air ROTC training bill and the revision of the Civil Aeronautics Act of 1938 to allow airman training were both untouched in the first session.

Hearings were held on the "Administration" bill to provide GI training benefits for veterans of the Korean war, but no vote has been taken. Another bill on the same subject to be proposed by Congressman Teague is much more popular with the aviation industry and will be introduced early in the 1952 session.

Some of the T-6 training planes we mentioned a few columns back as having been purchased by the USAF from North American and from private owners are now on their way overseas. Twenty of the trainers are bound for Portugal and several others for France.

Builders of lightplanes and airliners will receive enough controlled materials for the first quarter of 1952 to meet present schedules for production. This means that cuts were less serious than expected at first when steel, copper and aluminum allotments were adjusted. The reductions made by the Defense Production administration's Program Adjustment committee to the NPA Aircraft Division dealt for the most part with lessening military plane parts.

The Corporation Aircraft Owners Assn. is a growing outfit. Membership has increased over one-third in the past seven months. CAO now represents 50 business firms flying over 400 aircraft.

CAOA members' planes are found to carry, almost without exception, two-way VHF radio, VOR and ILS equipment. Three hundred of the company ships are multi-engined aircraft.

We note that Mr. Piper's PA-11 aircraft is now approved by CAA for installation of Lycoming O-235-C, 100 hp engines. The popular PA-11 may now be equipped with either 65, 85, 90 or 100 horses.

With the Lycoming O-235-C engine, either a Sensenich Model M76AM-2 or a McCauley Model LC90-LM7249, fixed-pitch metal propeller may be used.

Metal props, by the way, are credited not only with reducing vibration and prolonging propeller life but, thanks to their excellent cooling ability, with increasing the number of hours between overhauls.

Winter months give operators good conditions for putting on rural air tours, now widely acclaimed in the mid-west, to acquaint farmers with conservation and erosion facts of farming. With less foliage to peer through, the scars inflicted by erosion are easily seen. An average tour, according to NATA, keeps seven or eight volunteer fourplace ships busy taking people aloft. Several hundred people may be carried, most of them for their first flights.

When interest lags, this type of air activity may lure new customers into the airport, especially since farmers during winter months have more time for new ideas.

The doughty Florida Air Pilots Association is again planning to sponsor the Miami Air Show in January, despite CAA's new restrictions. Last year's show cost \$23,000 and made a profit. Commercial grants and sponsorships will enable FAPA to underwrite expenses for the 1952 show. Spectators will be able to view the performances free, according to present planning.

Military aircraft may play an important role in the program. The Department of Defense has rescinded its ban on military participation in airshows and now reviews requests on an individual merit basis. In view of this development and the CAA restrictions, modern airshows may become slightly camouflaged military recruiting performances.

A national aerobatics championship event is on the schedule as well as the annual and popular Miami-Havana air cruise.

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#1 AND #2
SIZE CUP TYPE
UNIT MOUNTS

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VIBRATION ISOLATION AND SHOCK PROTECTION FOR AIRBORNE EQUIPMENT

Minimum weight — Maximum structural strength — Complies with all applicable Government specifications — High inherent damping provides stability with shock and over-load capacity — Wide environmental tolerance — Optimum performance under all service conditions. #7001 in 5 load ranges 1/2 to 10 lbs. — #7002 in 5 load ranges 2 1/2 to 40 lbs.



SERIES #878

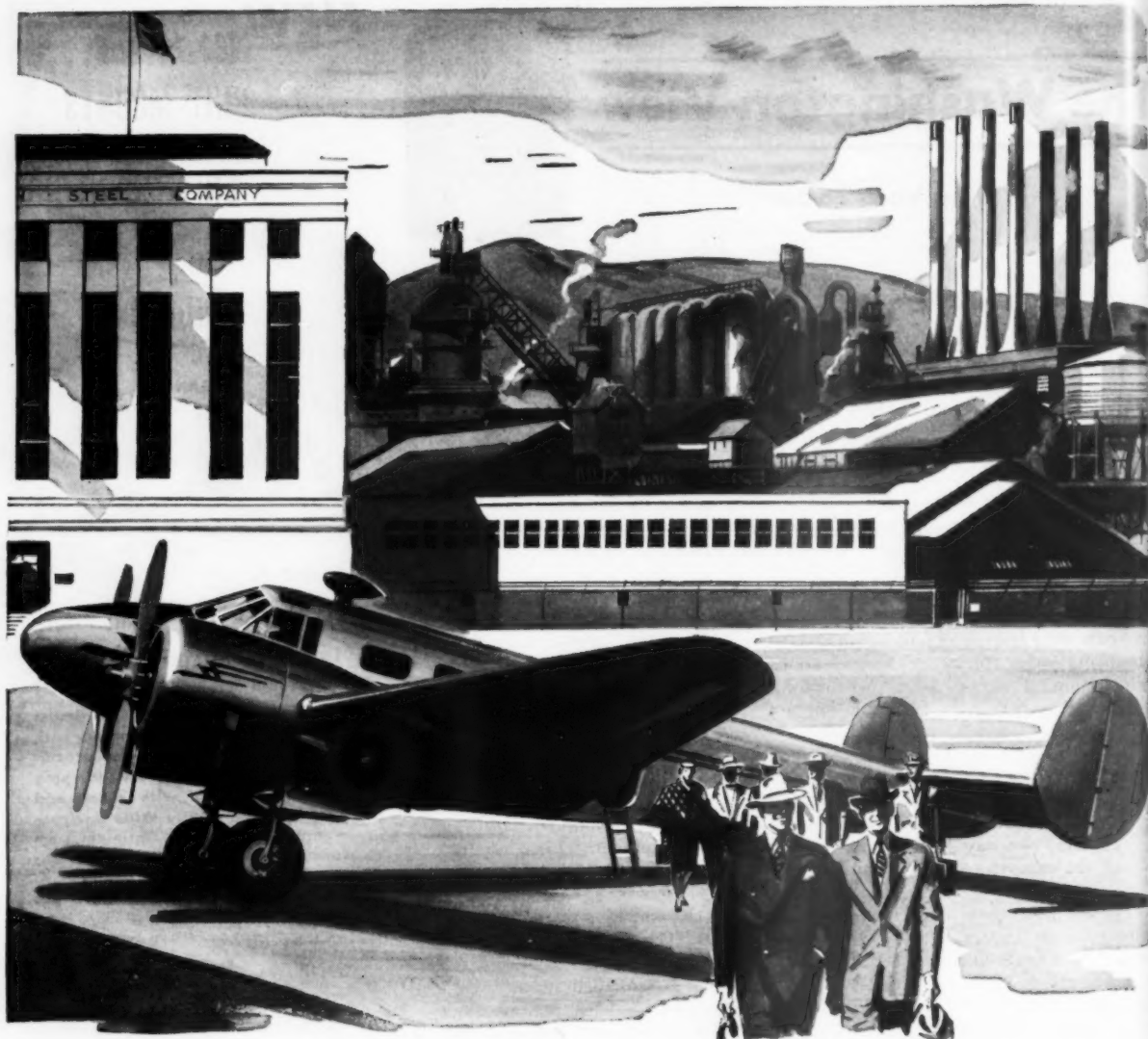
Two #7001 Unit Mounts assembled on common tie plate with bonding jumper — Simplifies mounting and reduces assembly time — Load ranges from 1 to 20 lbs.



SERIES #892

Complete Mounting Bases are available incorporating #7001 or #7002 Unit Mounts. Write for engineering data.

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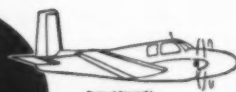
Wherever business is helping America build faster, you find Beechcrafts on the job. The two goals of defense production plus a healthy economy demand higher efficiency. Discover how you get more done—by Beechcraft. Call your Beechcraft distributor, or write to Beech Aircraft Corporation, Wichita, Kansas, U.S.A.



MODEL 18



BONANZA



TWIN BONANZA

BEECHCRAFTS ARE THE AIR FLEET OF AMERICAN BUSINESS



SAC's 25-ACRE RAMP AREA, which accommodates up to 226 transient aircraft.

Diversified Business Profitable for SAC

Southwest Airmotive, successful fixed base operator, nets \$107,332 before taxes.

SOUTHWEST Airmotive Company at Love Field, Dallas, Texas, is an interesting study, not only in what the fixed base operator can do for the industry in the way of providing service, but also in how this service can be provided at a profit.

During its last fiscal year, SAC grossed \$2,709,489 and netted \$107,332 before taxes. This was the company's peak year, 16% above the previous year. Part of this financial success story, in a field where the best operators have a hard time making a living, is the result of diversification within its own field. A check shows that about 30% of the business is the result of SAC's distributor activities, 40% from maintenance and overhaul and 30% from hangar leasing and the sale of gasoline.

Gas Sales to Rise

Selling gas should attract an even greater portion of company revenues during the current year. SAC recently completed a contract with the Armed Services Petroleum Agency, under which it will serve as the official refueling stop for all transient military aircraft in the Dallas area. This came about when routine activities at nearby Hefley Field made transient traffic undesirable.

To handle this business the company has had to add 115/145 grade fuel and JP3 turbine engine fuel to its existing supply of 80-, 91- and 100-octane fuel.

SAC stores 80,000 gallons of gasoline in seven underground tanks, uses six fuel trucks and one oil dispenser to provide quick fuel and oil service for three airlines plus itinerant traffic at Dallas.

Jealous of Position

Southwest's attitude in announcing the military fueling contract is typical of the attitude that has won the company much of its business. It was quick to point out that this new activity would not interfere with SAC's function as headquarters for private and executive aircraft in the area—that there would be room for all. SAC is particularly jealous of its position as a leader in the civil flying field.

In making this claim, SAC was not overselling its facilities which can handle

large numbers of transient aircraft. Its apron covers a 25-acre concrete area, which has held as many as 226 aircraft on a given day (see photo). During the Cotton Bowl game a year ago, 206 civil and 20 military planes carried an estimated 1,500 visitors to Southwest Airmotive facilities and then, via SAC, arranged buses to the game.

With 40% of its business accounted for in maintenance and overhaul work, the company operates out of five hangars as well as a sales department building, with a total of 170,000 square feet of floor space. The shops include equipment valued at about \$150,000.

6,000 a Year

In a normal year, Southwest Airmotive will handle, either directly or through component overhaul, equipment for some 6,000 aircraft. The engine shops will overhaul more than 500 engines, the prop shop about 150 propellers and the accessory shops will overhaul approximately 2,000 units, including magnetos, generators, pumps, starters, etc.

Southwest is an authorized repair station for Pratt & Whitney engines, Hamilton Standard Propellers. Through its distributor activities, it is a service agency for many others, including B. F. Goodrich, Wright Aeronautical, Aircraft Radio Corp., Bendix Aviation Corp. and RCA.

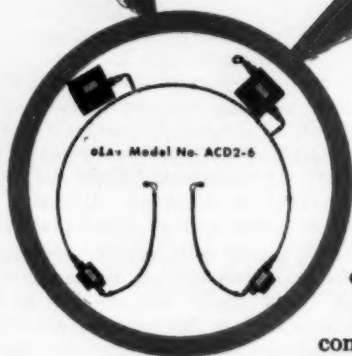
About 125 of the 180 employees at SAC are mechanics — an indication of where the company puts its stress; and only five are "management" — an indication that the company is made up primarily of productive workers. In an introductory bulletin for new employees appears the statement, "There are no 'brass hats' at Southwest Airmotive." This is carried over in actual practice.

SAC's engine and propeller overhaul shops at Love Field are in Hangar 4, with 36,000 square feet of shop area which served as headquarters for the company for 10 years after its completion in 1935. In 1946, keeping pace



SOUTHWEST'S MANAGEMENT, typifying its employees, dislikes the term 'brass hats.' Top men are (left to right) President Harlan Ray; Sales Manager Paul Kennedy, secretary; George W. Jalonick III, vice president-operations; and Winston C. Castleberry, v. p.-service.

*Does a flame-out
mean bail-out?*



... Not Necessarily So! Especially if the engine is equipped with a dependable GLA ignition system. The Model ACD2-6 high energy condenser discharge system—specified for many of the latest air force aircraft—is typical of the many complete systems built by GLA. Their performance is uniform under varying conditions of operating environments.

We specialize in equipment which combines advanced electronic development with unique space and weight-saving design. Solving complex ignition problems and producing the equipment is our business—our Engineering Department invites your inquiry. May we hear from you?

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AIRCRAFT AND ELECTRONIC PRODUCTS

with company growth, additional space was acquired and the parts warehousing and sales activities were moved to a former USAF warehouse on the other side of Love Field.

In 1947 the company obtained two more hangars, 20 and 21, on lease from the City of Dallas. Hangar 20, used for the radio and instruments shop, provides 41,000 square feet of floor space while 21 is used for administrative offices, airplane storage and transient aircraft service. It has 24,000 square feet.

Well-Equipped Shops

Fitted into these hangars are well-lighted, well-equipped shops for engine assembly, sheet metal repairs, instruments, machine shop, engine test cells, propeller, accessory and radio shops.

Between the latter two hangars SAC built up a 400-foot "Executive Plane-O-Tel" in 1949. This is a low-silhouette hangar, ideal for the executive and private aircraft business which SAC prefers.

Southwest Airmotive was originally founded in 1932 as Edward F. Booth, Inc. In 1935 this company became Booth-Henning, Inc. and in 1940 adopted its present name when the current three principal stockholders purchased the company. These men are Harlan Ray, president, Winston Castleberry, vice-president of service and George W. Jalonick, III, vice-president of sales.

Ray, an oil company executive, has served actively in company affairs, particularly during the war when Castleberry was away in service. Castleberry, with the company since 1937, handles technical direction and is an A-1 contact man. Jalonick has been the spark plug primarily responsible for the big distributor business now enjoyed by SAC.

Worth \$350,000

Southwest's initial capital investment of \$16,000 has been built into a company which now has a net worth of \$350,000. SAC likes to think that this is a direct result of its efforts to provide true service. This has called for many fresh ideas and policies including:

- Willingness to extend credit to meet customer needs. Accounts receivable have ranged as high as \$226 thousand in a single year, yet careful handling has kept credit losses at less than 1% of 1%.
- Establishment of flat-rate charges on all types of engine, instrument and accessory overhaul work so that the potential customer knows what he can expect in the way of charges.
- Selling all aircraft operators on the advantages of dealing with distributors—a function which was never fully

capitalized on in the aviation business, particularly among airlines.

Today, SAC is a distributor for more than 50 lines of aircraft parts with a six-state distributor territory for many of them and seven salesmen handling this phase of operations. SAC is an authorized distributor for Pratt & Whitney Aircraft, Wright Aeronautical Corp., Glidden Company, B. F. Goodrich Company, three divisions of Bendix Aviation Corp., Aircraft Radio Corp., McCauley Corp., and the Radio Corp. of America. It also sells products of such industry leaders as Flightex Fabrics, Inc., Collins Radio Company, Lord Manufacturing Company, BG Corp., Jack & Heintz, and many others.

Customer Campaign

Southwest stresses the fact that it doesn't merely handle distributor products. It "conducts a never-ending campaign in behalf of its customers, designed to stabilize prices, discounts, warranties and dealership structures."

Jalonick, assisted by Paul Kennedy, sales manager and secretary of SAC, has been successful in selling his concept of the airline-distributor relationship to a number of airlines. In these instances SAC has been able to prove its claims. Airline customers report much better liaison with manufacturers, and they like working through a distributor who, by keeping his parts "on the shelf," can offer improved delivery schedules. One airline says it has been able to cut its parts inventory by 75%, or from 180 days to 45 days. Losses through obsolescence are definitely cut and freight shipping costs are often reduced.

No Secrets

SAC's success in selling this type of service may be directly related to its long-range service policy. In the company's own words, as contained in a simple booklet titled *An Open Letter to Southwestern Aviation*. "We have never been too busy to lend a helping hand; to tell others lessons we have learned in our business; to unwrap for one and all the innermost details of our operation, of our financial story, our price set-up, and many other things which some operators guard closely as 'deep secrets'."

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TRANSPORTATION TICKETS
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ACCURATE — DEPENDABLE

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NOVEMBER 12, 1951

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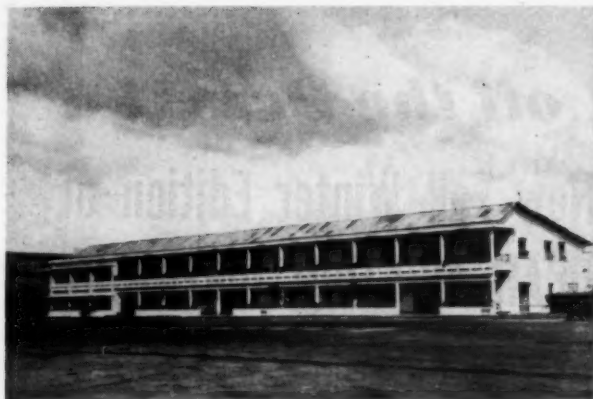
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Saigon's airport terminal.



Transient veranda at airport.

(Continued from page 6)

kilometers, and work goes forward each day to develop further this network for city traffic.

The stopover which you made at the airport was also too brief to permit you to get a true idea of the traffic at this base. We understand very well the difficulties which you must have had in order to get proper documentation. Here, therefore, in order to establish the facts, are a few easily controlled indications: Less than a month ago, Saigon celebrated the one millionth civilian passenger going through the airport of Tan Son Nhut. What other tropical city can boast of such a performance?

What we sincerely deplore, Mr. Editor, is that you were unable to be present at the airport of Tan Son Nhut a certain night last January. The Communist Viet Minh had just launched a massive offensive against Vinh Yen, a key French post in the Tonkin, not far from the frontier of Red China, and about 1500 kilometers, as the crow flies, north of Saigon.

French Airlift

Within four hours, the French Army organized, between nine o'clock in the evening and one o'clock in the morning, in cooperation with civilian aviation companies, an airlift between Saigon and Hanoi, capital of the Tonkin. That

permitted us to transport quickly several fully equipped battalions to the northern front. Without this help of airborne troops, the Communists would probably have made a break in the French line of defense that could have become catastrophic. That night, and the three days and three nights following, the airport of Saigon, Tan Son Nhut, played on the very front of the war against Communism, a capital role.

This capital role can be played at the airport partly thanks to Constellation and Skymaster 4-motored planes, of American make, which Air France has put at the disposal of the army. If we underline here our homage to the value of this American material in these

die-hard fighters

 **NORTHROP AIRCRAFT, INC.,**

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crucial hours, it is because we read in your article that not one 4-motored plane was in sight at the airport when you landed. If you had been able to remain with us a bit longer, you would have been able to note that each day half a dozen 4-motored, at least, and many 2-motor and 3-motor planes, land at Ton San Nhut, spend a short time here, and are then on their way. You would also have been able to see, several times a week, Bristol planes bringing back from Korea, through Taipei and Hong Kong, gravely wounded British soldiers on their way to Singapore.

The fact that you were unable to leave the confines of the airport during your stop-over, which we gather was a short one, in no way surprises us. There were being applied to you the international regulations in force in all airports of the world for passengers in transit.

The final point which bothers us, under the pen of an American journalist, is the unjustified declaration that Saigon resembles a typically French colonial city, hardly hospitable and in which not a single house is properly painted. We would like to see you again among us some day in order to show you how we try to keep up cleanliness and hygiene in this big and over-populated city, how this city can be gay for those who stop long enough to look at it.

GROUP OF FRENCHMEN
Saigon, Vietnam

More on Marathon

To The Editor:

Richard Worcester in his London Letter (AMERICAN AVIATION, Sept. 17) is misleading your readers in regard to the Marathon.

It is true that 40 of them are on order but far fewer than the 33 he mentions have flown so far.

He wonders what will happen when the order is complete and reports a suggestion that we should build Doves. This is ludicrous. Our subsidiary concern at Reading will be fully occupied on civil and military work for a long time to come.

As for the Marathon, it is likely to be sold in impressive quantity. It is unique as the world's only four-engined 18 to 22-seat feeder-line transport in full-scale production. Trials in airline service in various parts of the world confirm that it surpasses ICAO's stringent safety requirements for modern passenger aircraft.

Recent disasters with obsolescent twin-engined transports of pre-war de-

sign, heavily loaded with passengers and in certain circumstances unable to maintain height with one engine inoperative, have emphasized the urgent need on the world's short-stage routes for a new airliner able to fly with safety on any two of its four engines.

A fleet of Marathons is ready for delivery to British European Airways for service from its smallest and most difficult aerodromes. Several other operators, here and abroad, are about to order this safe and sure aircraft.

Perhaps you will be good enough to arrange for your readers to be given these facts.

S. A. H. SCUFFHAM

Public Relations Manager
Handley Page Ltd.
London, England

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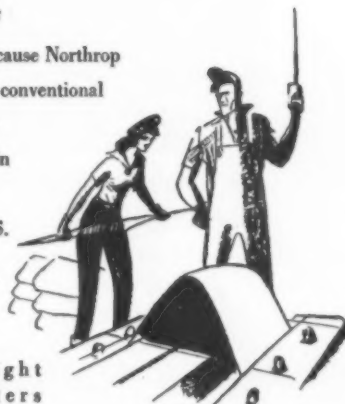


from hard die plastic!

Here's another time-saving, cost-saving Northrop production technique:

F-89's require fewer man-hours, less strategic material, less machine time because Northrop production engineers use simple, low-cost phenolic-resin dies in place of conventional metallic dies for forming thousands of high-strength metal parts. This technique is part of the production knowledge that delivered Black Widows on time in World War II—the same knowledge that's speeding the production of the deadly F-89 Northrop Scorpion, standard all-weather interceptor of the U. S. Air Force.

**Northrop has many new positions.
Your applications invited.**



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**Pioneer Builders of Night
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The Secret of **DOUBLE DEPENDABILITY**



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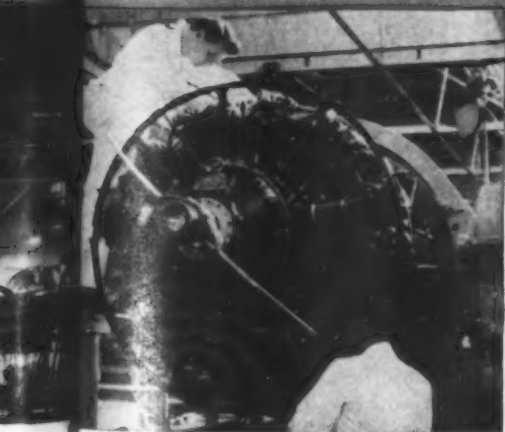
It is doubly significant, therefore, that Eastern has selected Sinclair to handle its vital lubrication needs.



Plane Taking Its Physical. Eastern's Miami base—one of the world's largest, most complete maintenance centers. About once a week, every airliner returns here for a major examination.

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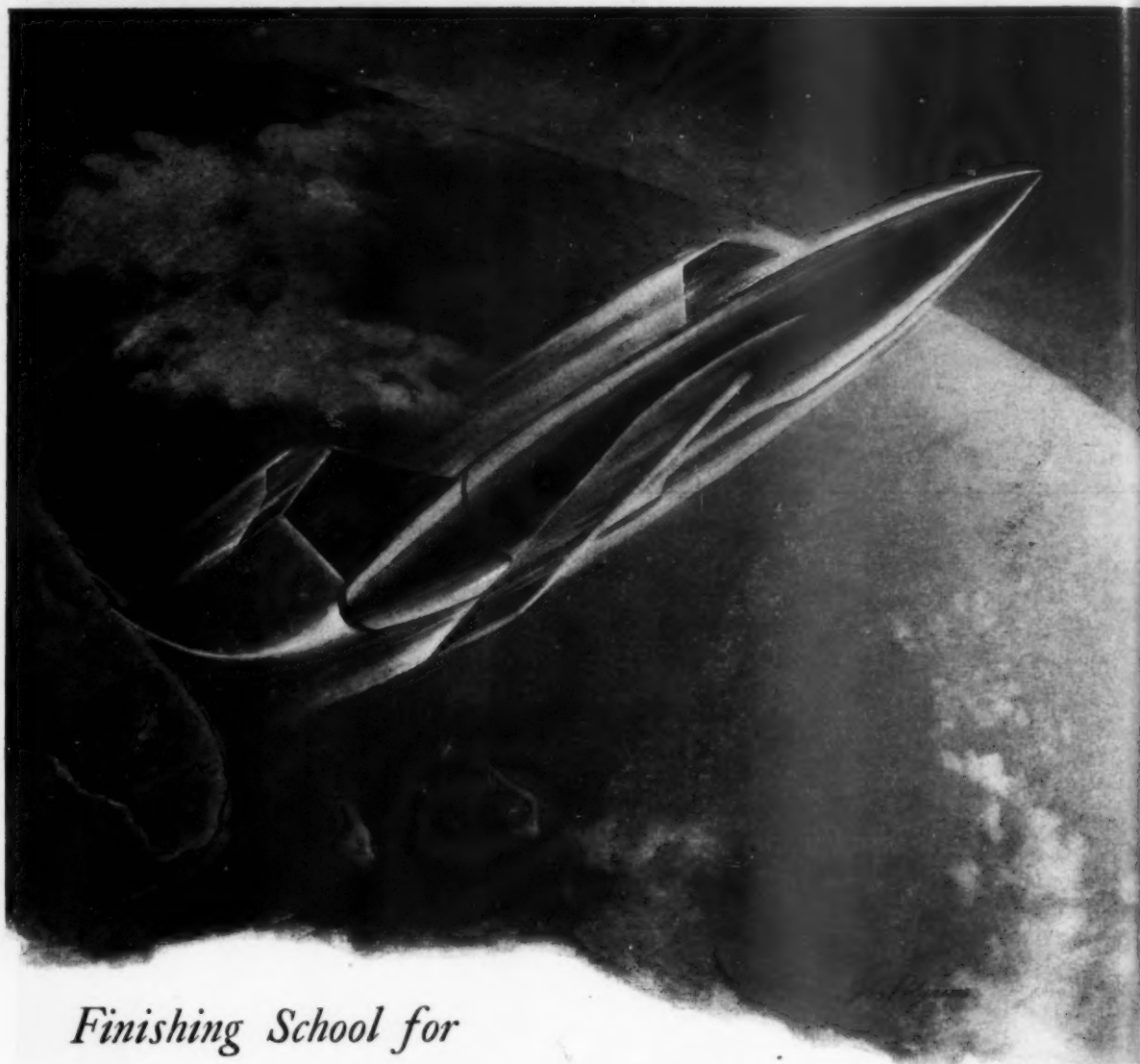
They Double Check—for double dependability. On each major engine overhaul Eastern expends some 500 man-hours—many more hours than standard requirements. Many of the tests and checks made are exclusive with Eastern, too.

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AIRCRAFT OIL for double dependability

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NOVEMBER 12, 1951



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The Air Force Missile Test Center, used by all our military services as a long-range proving ground, stretches thousands of miles from Florida, out over the Bahamas, into the South Atlantic.

A pilotless bomber roars away from its launching stand, picks up speed, zooms into the blue. Setting its course for a far-off target in the ocean, it rockets over a chain of tiny islands where men and machines check its flight, its behavior, the operation of its guidance and control systems. It's a vital part of our air power of the future—aeronautical research and development laying the foundation for continued U. S. air supremacy!

Operated by the USAF's Air Research and Development Command, the Missile Test Center is geared up to test the wide variety of missiles, rockets and pilotless aircraft vital to modern air power. It reached its full stature with the recent completion of down-range observation stations. And the dramatic B-61 pilotless bomber, the Matador, designed and produced by Martin as part of its diversified missiles program, was the first to use the completed range. THE GLENN L. MARTIN COMPANY, Baltimore 3, Maryland.

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Builders of Dependable Aircraft Since 1909

Illustration is artist's conception of Air Force B-61 Matador pilotless bomber.

DEVELOPERS AND MANUFACTURERS OF: Navy P5M-1 Martin seaplanes • Air Force B-57A Canberra night intruder bombers • Air Force B-61 Matador pilotless bombers • Navy P4M-1 Mercator patrol planes • Navy KDM-1 Plover target drones •

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B. T. "Bing" Kleine
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Phillips Petroleum
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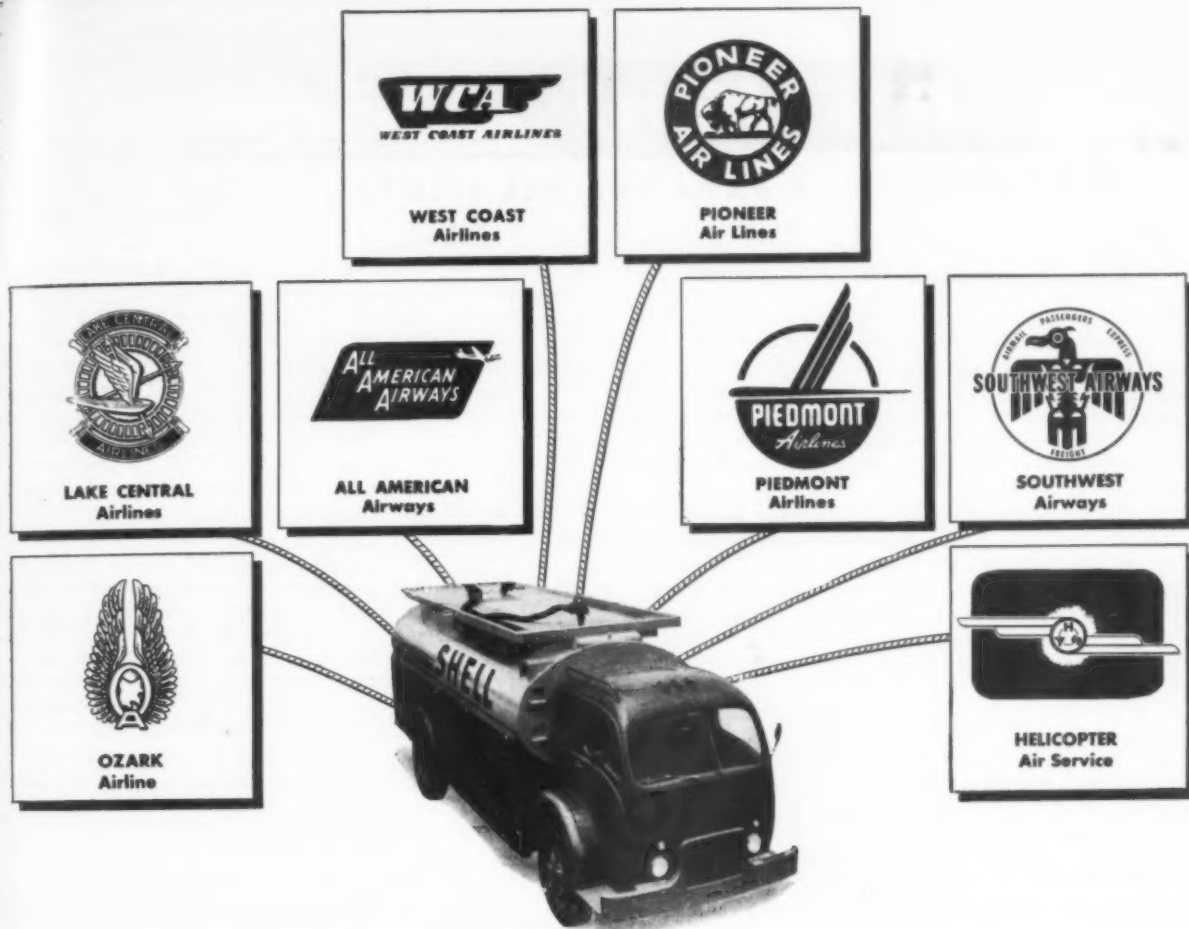
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IN FLIGHT

A PAGE FOR ALL PILOTS

One Language for Aviation

ENGLISH may become the international language for aviation radiotelephony within the next several years.

Trends in this direction are indicated in the long-standing formal proposal before the International Civil Aviation Organization, advocating universal use of English. France has recently withdrawn her proposal that the French language be used and has substituted a new French proposal in favor of English.

Opinion is that English would require least modification, although the "th" sound, almost impossible for Europeans to pronounce, will have to be changed. Work toward development of a standard vocabulary is also progressing.

As the need for an international language became more urgent, CAA financed a study, conducted by the Educational Research Corporation, to investigate the problem. Some of the findings of the study are that:

- Since the end of World War II, international air traffic has increased rapidly. From April, 1948 to April, 1950, more than 542,000 miles were scheduled weekly by commercial airlines flying international routes.
- Improvement in radio equipment has led to increased dependence upon voice communication, even for long-range use. Messages formerly sent in code or through teletype circuits are now sent by radiotelephone.
- Virtually all international air carriers now require fluent English of new pilots. Most companies conduct training programs in English.
- Dialect differences and words and phrases of similar sounds, especially letters and numbers, create safety hazards and increase costs caused by delay and misunderstandings. A standardized vocabulary, however limited, would decrease personnel training costs, promote better message comprehension, and encourage the use of radiotelephone equipment.
- A standardized language is needed because tower operators, listening to multiple transmissions in several languages, need to be almost superhuman to keep track of complex traffic positions and speeds, while at the same time transmitting and interpreting.

The Educational Research Corporation report suggests ICAO as clearing house and sponsor of a study program to establish English as a standard international language. ICAO's work would preclude possibility of conflicting findings and expense involved in duplicate studies; the organization, moreover, is in a position to provide full international cooperation.

The study should include contents of messages to be transmitted and received, how the language is to be phrased, pronounced, transmitted, taught, and propagated.

ERC estimates that expenditure for the first year of work would amount to about \$37,850. A three-year project would cost in the neighborhood of \$118,000.

Only Problem: 50 Volunteers

PILOTS who have given any thought to flying to the moon or to Mars will be interested to know that the day is not far distant when such a flight may be a distinct

possibility. According to information made public at the International Congress of Astronauts held in London last month, we have reached a stage in rocket engineering where, after a few refinements in technique, we will be able to proceed to interplanetary flight.

Here's how a mission to land 50 men on Mars would be accomplished. Forty-six three-step satellite rockets would haul spaceship parts and fuel out to a starting orbit. As these ships circle the earth in a field of no gravity, ten spaceships, completely assembled, equipped, and fueled, would take off from the earth orbit and fly to a second orbit around Mars.

While seven of these quietly "fly" around Mars, the other three, with fuel and stores replenished, would land the 50 men on the planet, where one of the ships would be abandoned, the men returning to the parent spaceships in the remaining two. Once back in the Mars orbit, the interplanetary pilots would be met by ships from the earth orbit, bringing them fuel and supplies. They would leave five ships orbiting around Mars and fly on home in the others.

Dr. Werner von Braun, who dreamed up this flight, says the trip would take two years and 239 days. It would be a pretty expensive undertaking, what with leaving space ships wandering around the heavens and abandoning one of them to the Martians, but he says the cost would be small compared with what the world is spending for armaments.

He looks forward to establishment of a space station which constantly revolves around the earth. Such a station, he says, would be used for astronomical observations, radio transmissions, astrophysical spectroanalysis, radio and TV transmission, and weather observations.

So He Just Watched It Burn

SOME personal-plane pilots don't bother to include fire extinguishers as standard equipment in their planes. The Committee on Aviation and Airport Fire Protection tells of two pilots who came to grief because of this oversight. They learned the hard way.

First pilot was flying a Stinson 108-2 when he noticed engine vibration intense enough to necessitate an immediate emergency landing in an open field. When he had found the trouble, he restarted his engine but apparently he over-primed, and his plane dripped gas into the grass under the plane. Then the engine backfired and lit the fuel-soaked grass. Smelling smoke, the pilot figured his battery cable had shorted as smoke began to flow up through his floorboards. He cut the engine, got out, and discovered the fabric on the underside of the fuselage was afire. Without a fire extinguisher with which he probably could have saved his plane, he realized there was nothing he could do but stand there and watch his plane burn up.

The other pilot was making a routine preflight check on his Taylorcraft when a fire, caused by over-tightening of a defective gasket, broke out in his engine. Before he could get help from the fire department, his Taylorcraft was totally destroyed. After it was all over, the pilot said he was sure he would have had a 50-50 chance of saving his airplane if he had had a fire extinguisher. But he, too, just stood there and watched \$1,200 worth of airplane go up in smoke.



the bulletin board

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Give complete resume of experience including past salaries, names of immediate superiors and salary desired.

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An important position, calling for experience in Wind Tunnel Flutter Model Construction and Testing Techniques, is open at Lockheed Aircraft Corporation in Southern California. The position has been created by an expansion in Lockheed's long-range production program.

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- Generous Travel Allowances
- Better Working conditions
- Better Future — working on planes for defense, planes for the world's airlines.
- Better living conditions — just because you will be living in Southern California

Note to men with families:

Housing conditions are excellent in the Los Angeles area. More than 35,000 rental units are available; huge tracts for home ownership are under construction near Lockheed. The school system is as good — from kindergarten to college (there are 21 junior colleges and major universities in the Los Angeles area).

Write today for illustrated brochure describing life and work at Lockheed in Southern California. Handy coupon below is for your convenience.

"Quick-Action Coupon"

Aerodynamics Engineer Program

Mr. M. V. Mattson, Employment Manager, Dept. ADI-AA11

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My name _____

My occupation _____

My address _____

My city and state _____

To forward looking engineers:

Lockheed in California offers you a better future ...in a better place to live

There's more to a job at Lockheed than eight hours' work a day. There's the friendly spirit of progress—of getting things done—that makes work so much more stimulating. There's the better life you live just because you live in Southern California.

There's the future that offers you and your family security and advancement with the leader in aviation.



New ideas that feed the long-range design program spring from spontaneous conferences such as these.



Outdoor life prevails in Southern California the year around.



Special training courses prepare you for promotion.

Better Working Conditions

On the job, you work in an atmosphere of vigorous, progressive thinking. Personal initiative, new ideas are encouraged. Frequent conferences iron out problems, keep work rolling smoothly. You work with top men in your profession—as a member of the team known for leadership.

Better Living Conditions

Every day, you get a "bonus" at Lockheed—in the better living conditions. The climate is beyond compare. Recreational opportunities are unlimited. Golf, fishing, the patio life at home can be yours 12 months a year and your high Lockheed salary enables you to take full advantage of the climate and recreational opportunities.

Better future

You have a future at Lockheed—not just a job. For Lockheed is building planes for defense, planes for the world's airlines. The planes of tomorrow are being designed today in Lockheed's long-range development program.

Special training courses in management and various phases of aeronautical engineering help prepare you for the future and promotion.

Ask any of the 5,000 who wear 10-year pins whether or not there's a career and security at Lockheed.

To Engineers with Families:

Housing conditions are excellent in the Los Angeles area. More than 35,000 rental units are available in the Los Angeles area. Huge tracts for home ownership are under construction now. Thousands of homes have been built since the last war. Lockheed counselors help you get

settled. Educational facilities also are excellent. The school system offers your children as fine an education as can be obtained anywhere. Elementary and high schools are conveniently located. Junior colleges and major universities abound—21 are in the Los Angeles area.

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Aerodynamics Engineers
Aircraft Design Engineers
Aircraft Electrical and Radio Designers
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Lockheed will train you to be an aircraft engineer. Full pay while training.
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Senior Electronics Systems Engineers, M.S. or Ph.D. in Electrical Engineering or Physics
Stress Engineers and Analysts
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Generous Travel allowances • Outstanding Retirement Plan • Vacations with pay • Low cost group life, health, accident insurance • Sick Leave with pay • Credit Union, for savings and low-cost financing • Employees' Recreation Clubs • Regular performance reviews, to give you every opportunity for promotion • On-the-job training or special courses of instruction when needed.

Mr. M. V. Mattson, Employment Manager, Dept. AA-11

LOCKHEED Aircraft Corporation

Burbank, California

Please send me your brochure describing life and work at Lockheed.

My Name

My Occupation

My Street Address

My City and State



Canals. With your kind permission I'd like to take you on the kind of trip you'll never read about in the travel books. I'd like to convoy you through some of the canals leading off the **Chao Phya River**, directly across from the city of Bangkok.

The *National Geographic* not many months ago described these same canals. What I propose to tell you is what the *Geographic* didn't mention.

In our great United States we have grown into a strange kind of "civilization," a sanitary bathroom era which has no counterpart in history and which lifts us above the plane of living experienced by the bulk of the world's several billion people. The more sanitary we get, the more we have to inject ourselves with all sorts of inoculations to keep from picking up diseases in other lands. We no longer have a natural immunity to diseases as do several billions of other people.

There are Differences. So accustomed are we to our age of plumbing that it comes as a shock to many of us westerners when we discover that at least half of the world's peoples (and probably about two-thirds) are physically incapable of discharging body waste by sitting as high as a toilet stool, or as high as the old-fashioned (but hardly obsolete) privy. This is rather an important point. It isn't that a billion or so people just don't have such things as toilets—they would have a difficult time using them. Their body muscles are conditioned for a lower position.

Now take these canals across the river from Bangkok. Here is probably the ideal place in the world for the westerner to see, in the comfort of his small launch and very close at hand, and in

a few hours' time, how much of the Far East lives.

The *National Geographic* will tell you about the early morning market in the canals, the boats loaded with luscious fruits and vegetables, the color of the scene, and all that sort of thing. But the *Geographic* neglects to tell you that the average westerner can't eat those wonderful looking fruits and vegetables (unless they've been well cooked) because human wastage was used for fertilizer. The natives are quite immune, but to the westerner who hasn't built up such immunity, there is that deadly thing known as amoebic dysentery.

All the Same Water.

In these canals you see the whole story of life from birth to death. In the span of one eye, say about twenty or thirty feet of canal front, you can see (1) a woman washing her hair (2) a young boy urinating (3) a man brushing his teeth (4) a man defecating and (5) a woman filling a jar of water for drinking or cooking. All of this in the same water, all within a few feet and all going on at the same time within fifteen feet or less of your launch.

I think it is important to know that a large portion of the world's population actually lives much in the animal stage of life. The more one travels about the world into those areas of vast concentrated populations in Asia and Africa, the more one realizes that we in the western world comprise rather small splotches of civilization on a globe that is still largely undeveloped according to our own thinking and manner of living.

Cycle of Life. The canals of the Chao Phya don't smell, or at least not very much. The fish are present in ample numbers to devour wastage, and

the canals and the river are tidal. Of course the fish are caught and eaten and the cycle of life goes on.

People live close together. The canals vary in width from thirty feet to twenty. Each house or store has at least one boat. Back of the houses are marshes with snakes and other jungle life so the canal is a street as well as the staff of life. During the market time in the early morning, boats clog the waterway and your launch has to squeeze its way through.

There are stores along the canals—grocery stores, shoemakers, just about everything and they are all reached only by boat. But there are floating stores, too. We passed a number of floating kitchens, which stop at the houses to prepare food or sell what is already prepared or to sell to passing boats. These kitchen boats have charcoal stoves and utensils and raw food—a sort of floating short order cafe. Flies have a field day every day, but nobody bothers. Several boats were floating 5c and 10c stores—loaded down with small items for sale.

No Modesty. Every shack has a small pier extending a short distance into the water. But the pier isn't so much for getting in and out of boats as it is to act as the privy for the household. This merely consists of removing two slats in the walk near the end of the little pier. The fact that you have neighbors on all sides, to say nothing of a lot of boat traffic, makes not the slightest difference.

There are babies by the thousands, or so it seems anyway. All the kids seem very happy and wave and grin to westerners going by in motor launches. The young ones are naked as jay birds. The older people seem grim—few smile. You have the feeling that you are intruding where you aren't wanted. The death rate is probably quite high. It is a hard, profitless life, this existence in the teeming East.

Seeing life in the raw along the canals of Bangkok is a tremendously moving experience. The gap between the primitive earthy life along the waterways of the Far East and the modern skyscrapers of our American cities is very broad. And how small a percentage of the world's population, indeed, is involved in our sanitized, mechanized, motorized and industrial civilization.



'IN THE SAME WATER, all within a few feet . . .'



'PRIMITIVE, EARTHY LIFE along the waterways . . .'

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Allison Turbo-Prop Engines Power 3 New Cargo Planes—

★ The Lockheed XC-130

★ The Douglas R6D

★ The Lockheed R70

While testing continues with the first U.S. Turbine Transport—the Allison Turbo-Liner, built by Convair—military contracts have been awarded for the installation of Allison Turbo-Prop engines in three additional types of transport aircraft.

★ The Lockheed XC-130 — a U.S.A.F. four-engine medium cargo plane—is the first military transport ever designed originally around Turbo-Prop power. It won U.S.A.F. design competition over five other makes and the selection of Allison engines

represents another first for Allison in the development of turbine transports in this country.

★ The new Navy-sponsored R6D is a modified configuration of the world-famous Douglas DC6A Liftmaster.

★ The Navy R70 is the new turbine version of the Lockheed Super Constellation.

Allison Turbo-Prop engines were selected for all three aircraft because they develop more power with less than half the weight of present engines in this power class.

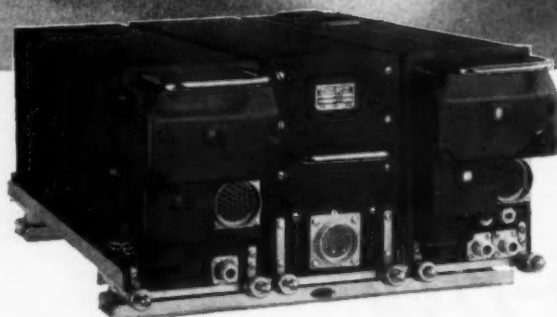


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The Wilcox 440A VHF Communications System covers all channels in the 118-136 Mc. band. It is light in weight, small in size, and easy to maintain.

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The 50-watt transmitter, high sensitivity receiver, and compact power supply are each contained in

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Simple, conventional circuits minimize the number and types of tubes and require no special training, techniques, or test equipment.

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WILCOX ELECTRIC COMPANY

FOURTEENTH AND CHESTNUT



KANSAS CITY 1, MISSOURI, U.S.A.

NEWSLETTER (Continued from opposite page 3)

Price of aviation gasoline is expected to increase after Dec. 1. Petroleum Chemical Division of E. I. du Pont de Nemours Co. has raised the price of tetraethyl lead aviation mix compound to 42.618c a lb., a 3½% increase, as of that date.

A 21-year lease was signed by six airlines for major portion of Airlines Terminal Building opposite Grand Central Station on 42nd St. in New York. Building will be used entirely as a central ticket selling facility on completion of new \$5.5 million East Side Terminal in about 14 months. Lease involves about \$6 million over its term and covers 53,000 sq. ft. of space. Leasing group, called Central Air Terminal Inc., comprises American, Eastern, National, TWA, United and Pan American. Additional domestic lines probably will be invited later to share in the facilities.

United Air Lines has directed its engineering department "to crystallize the thinking of its various engineering observers who have been studying the jet and turbo-prop equipment field at first hand, and to arrive at general specifications of what the company may wish in the future," according to W. A. Patterson, UAL president. "Such specifications will then be made available to all interested manufacturers."

Sale of 110,000 shares of National Airlines' common stock, said to be part of the 174,000 shares once held by W. R. Grace & Co. and resold to NAL last July, is reported to have been to the Alleghany Corp. This company, headed by Robert R. Young, who is also board chairman of Chesapeake & Ohio Railway Co., has heretofore invested funds almost entirely in railroad securities and is said to have bought the 110,000 shares through investment funds it controls. Purchase represents an 11% interest in NAL.

Chicago and Southern Air Lines has ordered eight Convair 340 twin-engined transports from Consolidated Vultee and has option to buy two more.

Scandinavian Airlines System is ready to start trans-Atlantic tourist services "simultaneously with any other carrier," according to Tore Nilert, managing director of company's North American division. He cautioned, however, that "both the public and the airlines will benefit from the tourist operations provided service is introduced at the right time at the right price and in the right way." His remarks were seen by industry observers as bearing a relation to Pan American World Airways' announcement that it will start low-cost service next spring, other IATA carriers notwithstanding.

Northeast Airlines has been granted an exemption by Securities and Exchange Commission to purchase four Convair 340's at \$585,000 each plus spares costing an estimated \$724,550. SEC okay was required since Convair and NEA are considered "affiliated persons" of the Atlas Corp.

Air Line Pilots Association executive board adopted resolution recommending that its attorneys amend ALPA's suit against deposed president David L. Behncke to include damages suffered by the union as a result of his actions.

CIVIL AERONAUTICS BOARD

Capital Airlines advised CAB it will accept a subsidy-free mail rate of 53c a ton-mile, but carrier indicated that subsequent upward adjustment may be necessary if present mail volume is reduced by diversion to Big Four carriers now on a 45c service rate. To prevent such diversion, CAP reiterated previous argument that non-subsidy mail payments should be made on basis of a "single graduated rate formula applicable to all carriers." CAB employs separate rates for separate classes of carriers. In other "future year" estimates submitted by domestic lines, Chicago and Southern predicts it will need \$1,934,103 in mail pay and Continental estimates its need at \$1,664,836, for the year ending Sept. 30, 1952.

One-third cut in Northeast Airlines temporary mail rates proposed by CAB because current rates have "substantially exceeded" NEA's break-even need. Board estimates proposed rates would reduce NEA's annual mail pay from about \$1,597,000 to \$1,000,000.

Initial temporary mail rates, approximating \$715,000 annually, were proposed by CAB for Alaska Airlines' new Seattle-Fairbanks operation. In the absence of data on which to base a final rate, CAB proposed a 60c plane-mile rate for 99,500 monthly miles which, it said, is "commensurate with the temporary rates established for other U. S.-Alaska carriers."

An exemption which would permit the complete merging of Inland Air Lines into Western Air Lines without further CAB proceedings has been requested of CAB by Western. Western now owns 99% of INL's stock, under a merger agreement approved by CAB in May, 1944. Due to difficulties under Wyoming laws, complete merger has heretofore been blocked. But WAL says it can now be accomplished under a plan calling for the dissolution of INL and the distribution in liquidation of its assets, including its air certificates. Result would be one "whole" company instead of a parent and subsidiary.

Scheduled helicopter service between New York and Philadelphia has been proposed by Chester D. Bucklad, Trenton, N. J. He asked CAB for a permanent certificate to transport passengers, property and mail with intermediate service to various Pennsylvania and New Jersey points.

CIVIL

C. E. A. Brown, director of Ohio Aviation Board, has been elected president of National Association of State Aviation Officials, succeeding Crocker Snow, of Massachusetts. Other new officers: Joseph K. McLaughlin, Illinois, 1st vice president; Frank Wiley, Montana, 2nd v. p.; Hubert H. Stark, West Virginia, 3rd v. p.; L. V. Hanson, South Dakota, treasurer; A. B. McMullen (reelected), executive secretary.

Kansas City officials are taking steps leading to immediate construction of a "super" airport to replace Kansas City-Grandview Airport recently leased to Air Force for 25 years as headquarters for Continental Air Command. City has about \$1,300,000 in general obligation bonds and \$6,-

000,000 in airport revenue bonds available for the new airport. Final selection hasn't been made but officials are said to have a site in mind.

LABOR

NLRB will conduct elections within 30 days at Ford Motor Co.'s Aircraft Engine Division in Chicago to determine whether 11 groups of employees wish to be represented by their own groups or the UAW-CIO. Both Ford and the UAW had sought to have all employees represented by the auto workers.

UAW employees at Ryan Aeronautical Co. have extended their contract 60 days, or until the Wage Stabilization Board panel conducting hearings on Douglas-Long Beach makes its recommendations.

Some 3,200 engineer and salaried LAW workers at Wright Aeronautical Corp. and the firm submitted their wage dispute to a WSB panel which is to make recommendations on the recent strike issues of 10,000 other Wright UAW employees. Hearings by WSB panels on Wright and Douglas disputes continue.

Bell Aircraft Corp. employees at Fort Worth will vote within 30 days on representation by the UAW-CIO, IAM-AFL or Aircraft Workers Union-Independent.

Pratt & Whitney workers at Meriden and Portland, Conn., will vote Nov. 14 and 15 to decide between IAM and UAW. About 650 are eligible to vote at Meriden and 75 at Portland.

Engineers and Architects Association-Independent and Lockheed have agreed on a flat 8% hike for hourly and salaried personnel. Some 1,900 engineers will receive a minimum of \$50 and a maximum of \$221.94 weekly if WSB approves the pact. Premium overtime rates for salaried personnel are included.

Hughes Aircraft Co. and Aircraft Industry Workers-AFL have agreed on a two-year contract calling for cost of living increases, changes in 15 job classifications, higher shift bonuses and automatic pay progression for grades earning \$1.44 or less, automatic pay to the mid point from \$1.45 to \$1.97 and the merit system after that.

FINANCIAL

American Airlines netted \$9,621,000, or \$1.33 a share, for the first nine months of 1951.

United Air Lines netted \$6,745,512, or \$3.04 a share, for the first nine months of 1951.

Northeast Airlines had a nine month net of \$326,201 compared with \$345,388 for the same period of 1950.

The Glenn L. Martin Co. had a net loss of \$17,969,369 on sales of \$28,142,731 for the nine months ended Sept. 30 as against a net profit of \$2,495,663 on sales of \$33,857,832 for the same period of 1950. Backlog is now \$425,000,000. The loss results principally from \$17.5 million the firm will lose on its 103 Model 4-0-4's.

Cessna Aircraft Co. sales for fiscal 1951 were \$26.5 million, triple 1950. Backlog is now more than \$80 million. A 40c dividend will be paid Dec. 14 to stockholders of record Dec. 4.

Beech Aircraft Corp. fiscal 1951 sales totalled \$32 million as against \$16,532,900 for fiscal 1950.

Backlog now is more than \$180 million. A 20c dividend will be paid Nov. 21 to stockholders of record Nov. 13.

Standard Coil Products Corp. and its subsidiary, Kollsman Instrument Corp. had a nine-month net of \$1,164,957, or 79c a share, on sales of \$27,013,071.

AROUND THE WORLD

Scandinavian Airlines System has sold four DC-3's to Air Carrier Supply Corp., Washington. The planes will be flown to the U. S. shortly. Spare parts are also involved.

Britain's ministries of transport and civil aviation, separate under the Labor government, have been combined under the Tories, with John Scott MacLay as minister. Other appointments in the new government went to Lord de L'Isle and Dudley, Air Secretary; James P. L. Thomas, First Lord of the Admiralty; and S. S. C. Mitchell, director of guided missile research, development and production.

Argentina's Minister of Aviation, Brig. Cesar Paul Ojeda, has resigned and has been replaced by Brig. Juan Ignacio San Martin, former aircraft factory head.

BOAC netted \$372,400 for the six months ended Sept. 30 as against a loss of \$6,238,400 for the same period of 1950.

British European Airways netted \$680,400 for the first half of the 1951-1952 fiscal year on revenues of \$18,200,000.

Danish carrier DDL netted about \$250,000 for 1951's first nine months. It operates two DC-6's, three DC-4's, 10 DC-3's with a DC-6B on order.

H. C. Cotterell, president of Canadian Air Industries and Transport Association, has called for a government transport expansion program, claiming less than 50 civil and military four-engine transports are available in case of emergency.

French Turbomeca's Palas turbojet engine has completed its 150-hour certification tests and has also finished 1,200 hours of test bench running. At 34,600 rpm, its rated take-off power is 330 pounds while maximum continuous power at 32,000 rpm is 265 pounds.

Air France has replaced its Junkers JU-52 trimotors in French Equatorial Africa with DC-3's but will use the JU-52's in Madagascar, where most airfields are too small for any other craft.

French-built de Havilland Vampire 53 prototype has completed factory tests and has been turned over to the French Flight Test Center.

Danish firm of Kramme and Zeuthen has test flown a new military spotter plane powered by a 140-hp Continental engine. It cruises at 130 mph and stalls at 20.

Two-place French lightplane, SIPA 93, powered by 90-hp Salmson 5ADO1 engine, has completed its first flight.

Third SE 2010 four-engine French transport, recently completed at SNCASE's Toulouse plant, is slated to fly this month.

BOAC has acquired a controlling interest in Gulf Aviation Ltd., which operates scheduled services in the Middle East.



Would You have Signed?

Jefferson, Adams, Harrison, Franklin and the rest did! Because they put the public welfare above every other consideration, their signatures on The Declaration of Independence changed the course of History. Would *you* have signed? Fortunately, most of us will never have to face a decision like that. Yet, daily, your signature does vitally concern the performance and reputation of your planes. Whatever your type of aircraft, your signature on the specifications directly affects thousands of people. A constantly growing number of aircraft designers, manufacturers and airline operators meets this obligation by specifying Eclipse-Pioneer instruments and accessories. Long experience with these products has bred respect for their performance. When your signature is required on a specification sheet, you can conscientiously feel you've chosen the best the field affords, when you indicate Eclipse-Pioneer.

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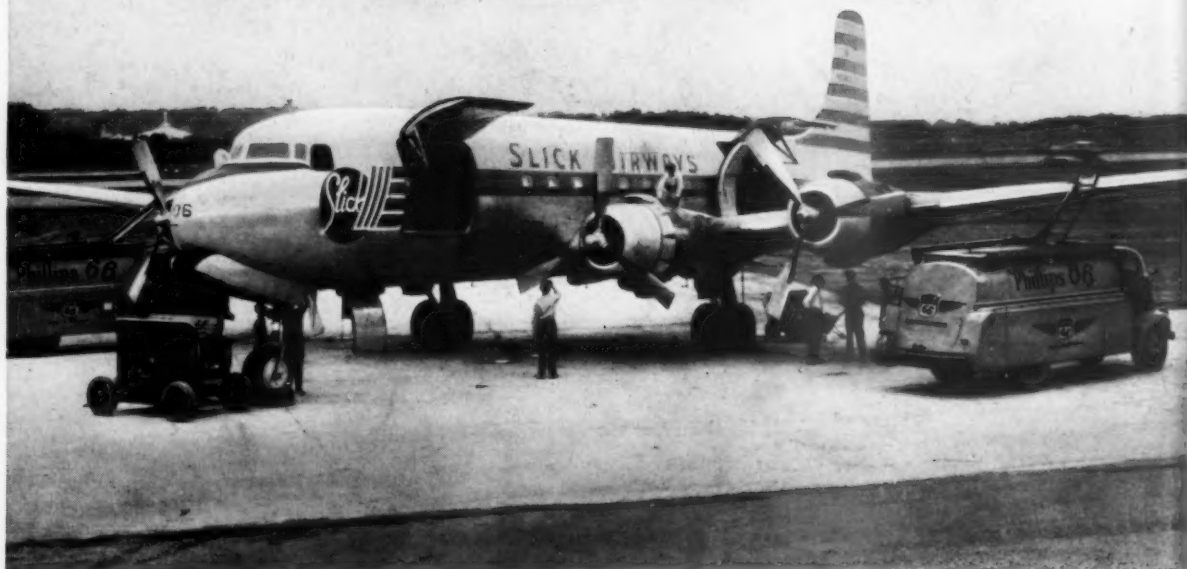
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Slick Airways'

NEW ALL-FREIGHT DC-6A's FUEL WITH

PHILLIPS 66!



New Phillips 66 platform-type tank trucks rapidly refuel Slick super-freighters. Two enormous cargo doors permit simultaneous loading and unloading of Slick's new DC-6A's.

SLICK AIRWAYS, large scheduled carrier of commercial airfreight, has recently added a fleet of six new Douglas DC-6A super-freight planes. These planes maintain regular, 9-hour, coast-to-coast flights . . . faster than many passenger plane schedules . . . at regular airfreight rates!

When speed and dependability are essential, manufacturers ship via Slick Airways. And because perform-

ance and dependability are imperative in the air, Slick fuels with Phillips 66 Aviation gasoline. More and more large commercial airlines and private plane owners are using Phillips 66 high-octane fuels and Phillips 66 airplane lubricants. For dependable aviation products, think first of Phillips. The Aviation Department, Phillips Petroleum Company, Bartlesville, Oklahoma.



AVIATION PRODUCTS



Luxury-loving orchids arrive in the pink of condition after fast, comfortable coast-to-coast trip via Slick Airways. Pressurized cabin and controlled temperature preserve freshness.

American Aviation

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COORDINATOR OF LIBRARIES
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Extra 4

Entered as Second Class Matter

November 19, 1951

Vol. 15 No. 25

CAB denied applications of four non-scheduled airlines for certificates to conduct unlimited transcontinental air coach operations and indicated that expansion of certificated coach operations can be looked for in next few months. Deciding the Transcontinental Coach-Type Service Case by a 4-1 vote, majority held that regular coach services are not supplementary to certificated operations but a component part of them.

It was important test case to determine whether, as in the air freight field, a new class of carriers should be authorized to "specialize" in coach operations. Unsuccessful applicants were Air America, California Eastern, Great Lakes Airlines and Trans American Airways. Eleven others dropped out of the case some time ago.

CAB emphasized that its denial affected only portions of applications requesting "unlimited authority" to conduct scheduled coach services. Other portions of applications dealing with "less than unlimited operations" were deferred for consideration in the Large Irregular Carrier Investigation which just recently got underway.

Instead of coach "specialists," Board said certificated lines should expand present operations and indicated that where necessary it would use its statutory powers to compel such expansion. Member Adams said the non-skeds should be given exemptions to render a demand type service.

CAB's "firm position" on the controversial North Atlantic tourist fare problem calls for inauguration of the tourist service next spring. In letter to U. S. members of International Air Transport Association, preliminary to traffic meeting in Nice, France, Nov. 27, Board said a "sound fare structure" for New York-London operations would be \$265 one-way, \$397.50 off-season round-trip and \$477 on-season round-trip.

Board estimates operations would be profitable at a year round load factor of 68 per cent. But it claims they should be based upon the highest practical seating density and that meal service be provided only on a compensatory basis. Excursion and promotional-type fares would be out if tourist proposal were adopted for next spring, but traditional one and one-tenth off-season round-trip excursion fares would be permitted as an interim measure until tourist service begins.

Delos W. Rentzel, Under Secretary of Commerce for Transportation, resigned his post effective Nov. 20 "for urgent personal reasons" but will serve briefly as a part time consultant to Com-

merce Secretary Charles Sawyer and Defense Mobilizer Charles E. Wilson.

Rentzel, former head of the CAB and CAB, has been in the Commerce Department since 1948. He said he is planning to accept one of the offers he has had to return to industry. 1951

For the first time, National Production Authority has granted aircraft "B Products" manufacturers a special priority and the practice may be extended.

The case involves columbium and tantalum, two metals which help make steel corrosion-resistant. Until now they could be used only in steel produced for direct military and atomic energy DO orders. NPA has decided the metals may now also be delivered to A and B product manufacturers when the steel is for products to be used in defense or AEC programs.

To obtain the priority, B product makers will have to have the approval of Aircraft Production Resources Agency at Dayton. This APRA certification is the virtual equivalent of A-1 priorities presently assigned to military aircraft orders.

Other B products producers have pointed out to NPA and other government agencies that their items also are intended for use in the military aircraft program. However, they claim, they have no more call on delivery of CMP materials than any civilian durable goods manufacturer.

Salary Stabilization Board has approved overtime pay for foremen and other supervisory employees to keep their pay scales higher than those of the workers who are under them. In the past, foremen ordinarily have not been paid for work beyond 40 hours.

Since regular workers are paid time and a half for overtime, they sometimes have been making more than their supervisors. SSB's decision authorizes only straight time payments for foremen working longer than 40 hours. Any other extra payment must have prior SSB approval.

Wage Stabilization Board will probably comply with AFL and CIO requests that its present program of permitting wage boosts for increased productivity be made permanent. The unions contend these raises do not increase prices because they do not add to a company's cost per unit.

Commerce Department has set up a Defense Air Transportation Administration to carry out re-

sponsibility for mobilization of civil air transportation facilities. An administrator, as yet unnamed, will be responsible to the Under Secretary of Commerce for Transportation.

The DATA head will also have jurisdiction over recommendations for direct loans and rapid tax write-off certificates for airlines but the Commerce Secretary retains the power to decide when private war risk insurance is not obtainable "on reasonable terms."

Trans-Atlantic airlines report that traffic continues high, with most planes full. All operators had expected the customary winter slump by this time, but the high volume of traffic is continuing.

Unusual sidelight involves the timing of those wanting to fly the Atlantic. Swissair, for example, reports meager bookings 10 days before departure dates but waiting lists when the planes take off.

MANUFACTURERS

Aircraft parts makers may now ask for higher price ceilings under the provisions of the Capehart Amendment to the Defense Production Act, which calls for the inclusion of all costs in determining prices. OPS has amended CPR 30 to include the amendment's provisions.

A special guided missile section has been set up by Douglas Aircraft Co. as a regular part of its service department as a result of increased missile activity.

Price ceilings have been lifted on aircraft and aircraft products sold to foreign governments exclusively for military use.

NPA has added four vital aircraft materials to its Notice 1 list of scarce materials. Those firms hoarding these materials may receive a \$10,000 fine, a year in jail or both. Added to the list were aluminum forgings and extrusions, aluminum castings, titanium and zirconium.

All three military branches are now using only Military Specification MIL-5005A to cover breakdowns of spare parts and parts catalogs. The spec standardizes the two types of reports contractors must furnish.

DPA Administrator Manly Fleischmann "hopes" to end CMP's A to E ratings by the second

quarter of 1952. The ratings are now granted to manufacturers who have direct defense or AEC orders.

Munitions Board and EPA are planning "industry assistance clinics" to help makers of less essential civilian goods get war orders. Producers whose CMP allotments for the first quarter have been cut to 20% of what they normally use or whose output will be half or less their normal rate will benefit.

To make more machine tools available for aircraft and other defense production, NPA has banned the shipment of new machine tools to consumer durable goods makers after Feb. 1 except as replacements for worn out tools. The order will mean a ban on model changes of cars, refrigerators, etc., after that date.

Newly named as deputy to Small Defense Plants Administrator Telford Taylor is John E. Horne, former administrative assistant to Sen. John Sparkman (D., Ala.).

Kenneth R. Ferguson, head of the air transport division of the Office of Civil Aviation Mobilization and former v. p.-operations and engineering for Northwest Airlines, has been named the representative of the Under Secretary of Commerce for Transportation on the Aircraft Production Board.

PLANES AND EQUIPMENT

CAA has authorized Douglas inspectors at Santa Monica to certificate the DC-3S (Super DC-3) and the Navy's R4D-8. Douglas also holds approval to certificate its DC-6A's and B's.

Douglas AD-5, newest model in the Skyraider series, has a "universal chassis" which can be converted into any one of a dozen combat types aboard a carrier. Earlier Skyraiders need structural changes to become Q,N,W,S or other versions but the -5 has packaged conversion kits supplied with each plane.

First de Havilland L-20A Beaver liaison plane was scheduled to be delivered to the USAF this week.

Mooney 90-hp "Mite" armed with two .30 calibre machine guns and a battery of rockets, has been demonstrated for the Marine Corps. It has a larger fuselage, cowed engine and larger landing gear than the 65-hp civilian model.

First Lockheed Super Constellation destined for Eastern Air Lines has flown and will be delivered later this month for crew training. First two off the assembly line are being used for type certification tests and will be delivered to EAL later.

Flight Test Associates, a new firm, has been organized in Los Angeles to undertake flight testing of aircraft and components under contract. It will also deliver planes here and abroad. A subsidiary of the same name has been set up in Britain.

Aerocar, Inc., has just completed a West Coast tour in which the public got its first look at the flying automobile. The firm is trying to raise money to produce three demonstrators. The prototype has a 125-hp Lycoming engine.

American Aviation

NEWSLETTER



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WAYNE W. PARRISH, Editor and Publisher

ERIC BRAMLEY, Executive Editor

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AMERICAN AVIATION

MILITARY

USAF's Daedalian Trophy for the lowest accident rate during 1950 has been awarded to Military Air Transportation Service. MATS' rate was 32% below 1949.

Armed Services Technical Information Agency, newly formed Defense Department unit responsible for collecting, cataloging and distributing technical data, will be headed by Leslie E. Neville, former public relations director for Curtiss-Wright Corp.

Charles A. Coolidge has been named the new Assistant Secretary of Defense, replacing Daniel K. Edwards, who becomes vice U. S. deputy on the NATO Council. Coolidge was formerly director of the Office of International Security Affairs in the State Department.

AIRLINES

Slick Airways became the first carrier to pass the 6,000,000 ton-mile mark for cargo by flying 6,656,985 ton-miles in October. Airline's common carrier load factor for the month was 77.3% and plane utilization was 8.7 hours per day. Its two DC-6A's, operating transcontinentally at a load factor of 75.2%, accounted for 1,365,163 ton-miles.

Transocean Air Lines has leased 30 acres at Haywood (Calif.) Municipal Airport for a defense project requiring the expenditure of \$500,000 and the hiring of several hundred workers. TAL recently obtained a \$6 million USAF maintenance contract.

CIVIL AERONAUTICS BOARD

CAB sharply criticized certain airline parties to economic proceedings before it for filing lengthy documents containing repetitive arguments, insinuations of bias, pressure attempts and otherwise ignoring the ethical standards set by the Board last March. Disciplinary action was promised if practice continues. No specific instances were cited but indirect reference was made to certain parties in the bitterly-contested Southern Service to the West Case.

Midget Aviation Corporation awarded a three year certificate authorizing transportation of persons and property between West Palm Beach and Miami, Fla., on the one hand, and West End, Grand Bahama Island, B.W.I. Board denied applications for similar service of Eastern, National, Pan American, Resort, Mackey Air Transport and Imperial Airways.

Northeast Airlines, involved in various east coast merger deals, applied for extension of its route No. 27 beyond New York/Newark to Miami, via Philadelphia, Washington, Charleston, S. C., Jacksonville, Orlando and St. Petersburg.

Final mail rates proposed for Northwest Airlines trans-Pacific operations during the period September, 1946 through December, 1950 total \$14,224,000, or about \$645,000 less than named in a temporary rate order last March. For domestic operations between Dec. 8, 1947 and Dec. 31, 1950, total mail pay proposed is \$14,091,574. No

change in "future" rates was proposed pending settlement of NWA's equipment problems.

Capital Airlines directed to show cause why it shouldn't accept a subsidy-free mail rate of 53c a ton-mile retroactive to Oct. 1, 1951. Earlier, carrier told CAB it would accept such a rate on the assumption that present mail volume will continue. It means approximately \$871,000 less annually in mail pay for Capital.

CAB proposed \$467,325 in back mail pay for Robinson Airlines and future rates which would return approximately \$663,729 to the carrier annually. In line with recent subsidy separation action, CAB indicated that \$638,729 of the estimated annual future amount would be subsidy and \$25,000 actual compensation for carrying the mail.

United Air Lines was given an additional two months to terminate its operations at Rock Springs, Wyoming, as CAB reconsidered its decision in the Frontier Renewal Case. Under revised plan, UAL will terminate on Jan. 12, 1952, with period of enforced suspension running through March, 1953. Meanwhile, Frontier will offer local-type service to Rock Springs.

European-American Airlines amended its trans-Atlantic all-cargo route application with the following revised route now proposed: New York, Chicago and Baltimore as U. S. co-terminals; Gander, Shannon and London as intermediates; and Paris, Amsterdam, Brussels, Luxembourg and Frankfurt as European co-terminals. Application is being considered in the North Atlantic Certificate Renewal Case.

U. S. Airlines, certificated all-cargo line, was denied an exemption to conduct military charter operations, as CAB told it to concentrate on its certificated services.

CIVIL

National Aeronautic Association has accepted the resignation of Donald D. Webster as president and has hired him as a full-time general manager. Joseph T. Geuting, Jr., of AIA's Personal Aircraft Council, has been appointed acting president.

Two fixed base operators at Wichita Municipal Airport are leaving the base at government request because it has been taken over as a B-47 training base. Harte Flying Service will transfer operations to Hutchinson, Kans., until Wichita's new airport is finished. C & H Air Service has not yet decided where it will move.

Non-aeronautical firms at Tuscon, Ariz., Municipal Airport have been told to vacate to make room for Grand Central Aircraft Co.'s B-47 overhaul project. Some civil air operations may also be transferred.

Civil aircraft shipments in August totalled 170 planes as against 354 craft shipped during the same month in 1950. Unfilled orders in August totalled 647 planes weighing 3,000 pounds or more as against a backlog of 176 planes in August, 1950.

LABOR

Lockheed Aircraft Service, Inc., and IAM-AFL have extended their contract until Oct. 31, 1952. The pact calls for an 8% wage boost retroactive to Oct. 29, with 2% of it subject to WSB approval, and an additional 4% hike next Mar. 3. Other features in the agreement are similar to those recently negotiated between the IAM and Lockheed Aircraft Corp.

Pacific Airmotive Corp.'s new contract with the IAM for its 2,400 workers at Burbank and Chino, Calif., provides for an 8% boost, with 5% retroactive to Oct. 1 and 3% retroactive to Nov. 1 and is subject to WSB approval. Other features call for upward adjustment of seven labor grades and improved insurance benefits.

WSB panel investigating the Douglas-UAW-CIO issues has completed its hearings and was to start work on recommendations Nov. 17. Another panel checking the issues in the Wright-UAW case will resume its sessions at the end of the month. Hearings have been recessed to permit both sides to agree on issues.

Engineering & Research Corp., Riverdale, Md., and 1,700 IAM-AFL workers have agreed on a contract calling for longevity pay of one cent an hour over the base rate for every year of service (up to 10 years), five days paid sick leave, a third week of vacation after ten years, seven paid holidays and a 10 cent an hour night differential. WSB must approve the longevity, sick leave and vacation features of the contract.

IAM-AFL has won in two Fairchild Farmingdale, L. I. plants. Stratos Division workers selected the IAM over the UAW-CIO 94-13 while Guided Missile Division employees preferred it 126-57.

FINANCIAL

Trans World Airlines netted \$6,192,170, or \$2.55 a share, on nine-month revenues of \$108,702,772 as against a net of \$6,938,465, or \$2.86 a share, on revenues of \$85,910,957 for the same period of 1950.

Eastern Air Lines had a nine month net of \$3,890,983, or \$1.62 a share, on revenues of \$74,838,023 as against a net of \$1,746,000, or 73c a share, on revenues of \$58,395,764 for the same period of 1950. A 25c dividend will be paid Dec. 5 to stockholders of record Nov. 13.

Braniff Airways had a nine-month net of \$1,431,758, or \$1.43 a share, on revenues of \$18,932,451 as against \$768,952, or 77c a share, on revenues of \$15,427,092 for the same period last year.

Mid-Continent Airlines reported a nine-month net of \$165,586, or 40c a share, compared with a net of \$243,824 for the same period last year.

Continental Air Lines netted \$326,844, or \$1.06 a share, for the first nine months of 1951, compared with a net of \$91,212, or 29¢ a share for the same 1950 period.

Delta Air Lines had a net of \$387,000, or 77¢ a share, for 1951's third quarter, a 76% gain over the \$218,000, or 44¢ a share, it earned in the same 1950 period.

Western Air Lines had a nine-month net of \$1,185,323, or \$2.26 a share, compared with

\$662,136, or \$1.26 a share for the same 1950 period.

Boeing Airplane Co. netted \$4,055,198, or \$3.74 a share, on sales of \$235,870,980 for the nine months ended Sept. 30, as against a net of \$8,210,252, or \$7.58 a share, on sales of \$207,606,595 for the same period of 1950. A \$2 dividend will be paid Dec. 5 to stockholders of record November 15.

Jack & Heintz, Inc., netted \$1,505,144 on sales of \$15,753,147 for the nine months ended Sept. 30 as against a net of \$1,000,721, on sales of \$9,499,484 for the same period of 1950. Backlog is \$42,000,000.

Bell Aircraft Corp. will pay a \$1.25 year end dividend Dec. 20, making 1951's dividends total \$2.25 a share as against \$1.75 last year.

Fairchild Engine and Airplane Corp. will pay a 20c dividend Dec. 6 to stockholders of record Nov. 19.

United Aircraft Corp. netted \$8,497,370, or \$2.36 a share on sales of \$288,511,291 for the first nine months as against a net of \$9,341,533, or \$2.62 a share, on sales of \$192,268,229 for the same period of 1950. Backlog is now \$1,300,000,000. A 50¢ dividend will be paid Dec. 10 to stockholders of record Nov. 23.

Garrett Corp. reported a net of \$604,304, or 98¢ a share, on sales of \$13,402,293 for its first quarter ended Sept. 30. Comparable figures for 1950 show a net of \$485,665, or 77¢ a share on sales of \$5,906,966.

AROUND THE WORLD

British Overseas Airways Corp. netted \$372,400 for the first half (April-September) of its current fiscal year, compared with a net loss of \$6,238,400 for the same period last year.

International Chamber of Commerce is on record as opposing a single European airline as not being either "practicable or desirable."

Canadian Pacific Air Lines, which formerly planned to use deHavilland jet Comets over the northern arc to Tokyo and Hong Kong, will fly them on its southern routes to Honolulu and Sydney first.

Panair do Brasil has filed a \$1.5 million suit against an auditing firm for allegedly failing to discover the embezzlement of \$1.65 million by Panair employees between 1946 and 1949.

South African Airways is selling British European Airways the last four Vickers Vikings of its original eight. BEA bought the other four some months ago.

Australia's ban on the flights of deHavilland Doves in Australia and New Guinea has been lifted.

Trans-Australia Airlines netted \$460,000 for the fiscal year ended June 30, down \$20,160 from the previous year.

Second prototype of France's Ariel 1120 turboprop helicopter has made its first flight. Another helicopter, the SE 3120, which has been undergoing modifications, is also flying again.

Britain's first simulated jet trainer has been built by Air Trainers, Ltd., which also builds the Link piston trainer. Firm is designing trainers for the Airspeed Ambassador and Vickers Viscount.

First of three 140-ton Saunders-Roe Princess flying boats has been rolled out but will not fly until spring.